MAY 25 1925

AUTOMOTIVE INDUSTRIES

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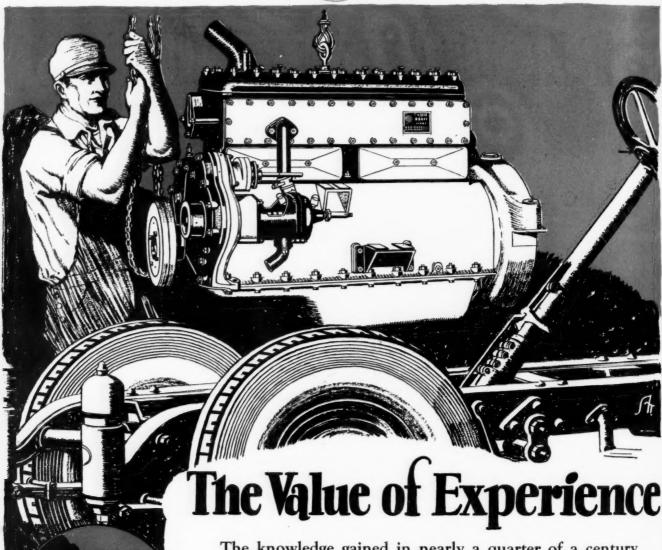
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Continental Motors

AUTOMOTIVE INDUSTRIES

VOLUME 52

New York, Thursday, May 21, 1925

NUMBER 21

Car Sales as a Whole Still Good, but "Soft" Spots Are Developing

Survey indicates that tapering off of Spring demand has begun. Situation has been anticipated, however, and stable business for rest of year seems assured.

HILE no definite slowing down in automobile retail sales has taken place, after several months of continuous upward sales trend in practically every section, soft spots are beginning to appear in scattered parts of the country.

A large majority of reports still tell of increasing sales and stable markets. A slight change in trend, however, seems to have started now, but this has been expected for some time and most factories will be ready to adapt their output to conditions without much difficulty.

That some such change has been anticipated is indicated by the statement in Automotive Industries on May 7, that "Capacity production probably won't last more than a few weeks longer this year. Most manufacturers admit this, but the old adage still remains that each one will believe that his particular factory will be able to go on just a few weeks longer than anybody else's."

Cash Sales Grow

THE retail financing situation continues to be satisfactory, although several finance companies are reporting larger losses now than at the same time last year. Intense competition among finance companies has led to the extension of very liberal terms in some sections and it will be advisable for car manufacturers to watch this situation very closely. It should be noted, however, that several cities report a higher percentage of cash sales than in 1924.

While our special reports from all sections of the country are not complete at this moment, sufficient information is at hand to warrant the preceding statements.

In North Carolina, for example, conditions are reported as "spotty," with some dealers unable to get enough cars and others with plenty of stocks on hand. Sales are good in Norfolk, Va., but falling off is recorded in the surrounding area. Buying of passenger cars is showing marked improvement in Birmingham, Ala., but truck sales are poor. Sales are fair in Louisiana and still are on the upgrade in most parts of Georgia. Good business is reported in South Carolina although sales are not up to those of last May.

Iowa Sales Off

FROM Des Moines, Iowa, comes the report that "a slight slackening in new car sales has been noted in this territory during May. This condition, according to distributors, may be attributed to the fact that much of the business in Iowa depends on the farmer, who is exceptionally busy at this time of year. Car dealers in cities find business better than do those serving rural communities. Used cars show a better movement."

Massachusetts reports that slowing up in new car sales has begun in some lines.

Salt Lake City reports new car sales slightly below normal for May, with many dealers heavily loaded with stocks of used cars.

"Most distributors are far behind in orders, and cash sales are more numerous than a year ago," is the favorable report which comes from Canton, Ohio, while Baltimore reports that "with their stocks in good condition, car dealers are doing a steady, satisfactory business."

Business Steady in Seattle

A VERAGE run of business in Seattle, Wash., is much the same as a year ago in practically all automotive lines, but dealers are hesitant about stocking up on cars because the public is somewhat fickle and is turning to new models. Greater number of cash sales are reported here also.

"New Phantom" 40-50 Hp. Rolls-Royce Has Overhead Valves

Six-cylinder engine is retained for new model, although smaller bore and longer stroke gives 33 per cent more power at 2250 r.p.m. Dry plate clutch replaces cone type.

By M. W. Bourdon

HE English Rolls-Royce Co., announcing a new model of its 40-50 hp. chassis, the "New Phantom" (which supplements and does not entirely displace the existing type, hereafter to be known as the "Silver Ghost"), states that it has decided to retain six cylinders in line after designing and testing a twelve-cylinder V type and a straight-eight, and also to adopt pushrod operation for the overhead valves after testing the alternative-an overhead camshaft.

The question of providing a supercharger has also been considered and experiments along that line have been conducted, but a decision against the idea was arrived at, it being considered that better results for ordinary car use can be secured by using an engine slightly larger than that which would be used to secure the same maximum power if a supercharger were employed. It is pointed

out that a high torque at low engine speeds cannot be secured from a small engine supercharged at high speeds and that the latter is also prone to detonation at slow rates of revolution.

The new engine has a bore and stroke of $4\frac{1}{4}$ by $5\frac{1}{2}$ in., giving a piston displacement of 468 cu. in., which compares with the $4\frac{1}{2}$ by $4\frac{3}{4}$ in. (452 cu. in.) in the case of the existing model. The new one has a normal maximum speed of 2750 r.p.m. and is said to develop 33 per cent more power at 2250 r.p.m., the maximum speed of the old.

Two interchangeable valves are located in each detachable cylinder head, which is a one-piece casting on two blocks of three cylinders and is secured by long studs that pass through the cylinder blocks to the crankcase. The latter is of aluminum and the upper half supports the nickel chrome crankshaft in seven bearings. The crankshaft is machined and ground all over to fine limits.

Aluminum alloy pistons are used and the wristpins are lubricated under 25 lb. pressure with the crankshaft and big-end bearings. The overhead rocker shaft is also sup-

How the New Rolls-Royce Compares with Old

40-50 hp. chassis 40-50 hp. chassis hitherto sold: now announced: ("Silver Ghost") ("New Phantom")

Piston dis-

placement. 452 cu. in. 468 cu. in. Bore 41/2 in.

Stroke 43/4 in.

Maximum speed 2,250 r.p.m. 2,750 r.p.m.

Valves . . . Side Overhead Cooling ... Pump and Pump and hand thermostat operated ra-

diator shutters Clutch Cone Dry single

plate Ignition . . . Battery; mag-Battery; magneto: hand neto; autocontrol of matic and advance and synchronized

advance and retard retard R. A. C.

Rating ... 48.6 43.3 Price£1850 £1850-1900 plied with oil directly from the pump, but at 5 lb. pressure, and jets of oil at 1 lb. pressure are delivered to the timing gears, which have helically cut teeth. A gear type pump is used, located in the crankcase and surrounded by a cylindrical filter.

The engine is three-point suspended, with the Rolls-Royce flexible anchorage at the rear end. The front (third point) of the suspension is so arranged as to enable the timing gears, etc., to be easily accessible, without dismantling the anchorage.

A torsional vibration damper is fitted at each side of the front end of the crankcase, and a friction damper of the flywheel type is used at the front end of the crankshaft, completely inclosed within the distri-The cambution casing. shaft gears are operated by a friction-damped spring drive.

An unusual method of

effecting the adjustment of valve clearances has been Each rocker is carried on an eccentric bush, which can be rotated by means of teeth cut on its flanged end and engaging with a worm having a slot for operation by a screwdriver. The bushes are locked after adjustment by being tightened axially on the rocker shafts, nuts on the extremities of the latter being provided for the purpose. In addition to this fine adjustment of clearances, the cam followers as usual also provide a means of adjustment.

Another unusual feature occurs in the induction tract, resulting, it is claimed, in an engine less susceptible to variations of temperature and to the use of low grade fuel; "wells" and return pipes are arranged at those parts of the induction system where liquid fuel would pass and tend to be deposited, subsequently to be carried into the cylinders. The return pipes carry the fuel back to a jacketed portion of the induction manifold. It is claimed that, on this account, the distribution at low engine speed and with a cold engine is still good, and that it is possible to ustries

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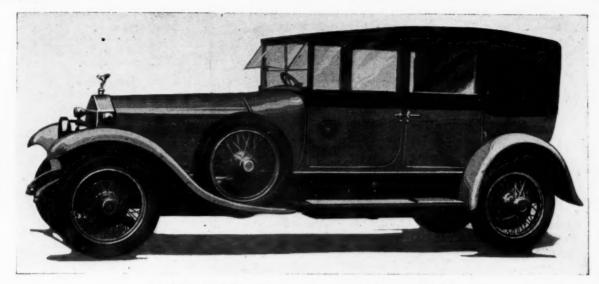
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Rolls-Royce "New Phantom" enclosed drive cabriolet

make full use of carbureter jet control without likelihood of liquid fuel entering the cylinders.

The carbureter is of Rolls-Royce design, described as a "double-throat automatic expanding" device, with an additional small, high-velocity, rich-mixture carbureter for starting from cold, which removes the need for flooding or choking. The throttle, of the butterfly type, is actuated by pedal as usual, but the hand control, in accord with Rolls-Royce practice hitherto, acts upon a centrifugal governor, which operates the throttle through part of its total range.

As with Rolls-Royce cars hitherto, two entirely independent ignitions are provided, battery and magneto; but they are now synchronized and provided with automatic advance, a centrifugal governor operating through the medium of a hydraulic relay, or servo motor.

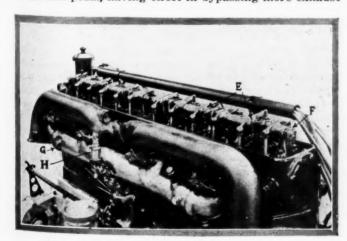
The magneto adopted is the Watford, which has a sleeve between armature and field magnets for varying the timing, thus giving an equally good spark at all positions of the control, the latter being hand-operated as well within certain limits. The jacketed portion of the induction manifold is connected to one of the exhaust manifolds, and a butterfly throttle in the latter is coupled to the throttle pedal, having effect in bypassing more exhaust

gases through the jacket when the pedal is depressed, thus giving additional heat when accelerating.

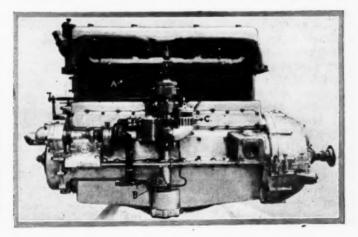
A special feature of the automatic relay advance is that, should the engine oil pressure fail, the automatic ignition advance goes back to zero, thus warning the driver. There is, however, a sufficient range of hand advance for the engine to develop full power up to 1000 r.p.m., while by a peculiar system of linkage it is possible to retard the battery ignition by hand to a greater extent than the magneto.

Electrical Equipment Own Make

The electrical equipment is of the single-pole type, 12 volt, and, apart from the battery, is made throughout by Rolls-Royce. Cutting-in at unusually low speeds, the dynamo gives its maximum current at a proportionately low engine speed, but the current falls off at high speeds to prevent overcharging. Magneto and generator are driven in tandem, but the water pump has a separate drive, necessitating glands at one end only. There are two glands at the driving end, a sealed space for grease being provided between them. Temperature control (effected by a thermostat on the existing 40-50 hp. model)



View of new Rolls-Royce overhead valves. E— Two of the worm screws for adjusting the valve clearances by means of eccentric rocker bushes, the adjustments as a whole being locked by the end nut F. G—One of the "wells" to collect fuel deposited in the induction manifold, with a return pipe to the manifold stem. H—Engine starting carbureter



Left side of new Rolls-Royce 40-50 hp. engine. A—Return pipe from front end of induction manifold, conveying liquid fuel back to jacketed portion of manifold stem. B—Three-stage oil pressure relief valve, affording pressures of 25 lb., 5 lb., and 1 lb. C—Air inlet pipe from crankcase interior

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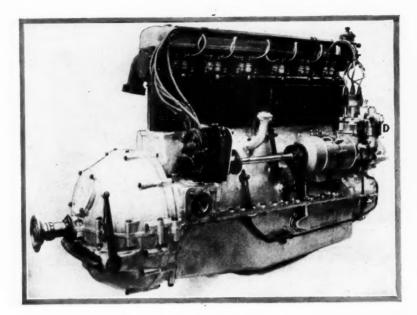
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Right side of new Rolls-Royce engine. D—Hydraulic relay or servo motor operating the ignition advance. The ignition is retarded if oil pressure fails

is secured by hand-operated shutters, the radiator being of the cellular type with round tubes.

Apart from the changes in the clutch, there is no variation of note behind the engine. A dry single plate clutch is used instead of the cone type hitherto associated with the larger Rolls-Royce, though the 20 hp. model has always had a plate type. A novel clutch brake is used which depends for its action upon the weight of the driven member of the clutch and a spring. No precise information as to its construction is available, but it is said to have more effect when the car is ascending a hill than when it is descending a gradient, thus facilitating the changing of gears in both directions.

Although, as just mentioned, the remainder of the new model is in line with the existing one, the following general particulars may be quoted:

A four-speed gearset is used, suspended at three points; the rear axle is of the floating type with spiral bevel gears; four-wheel braking is standard, pedal-operated

through the medium of a servo device, which is supplemented as to rear wheel braking by the actual pressure exerted by the driver upon the pedal; a separate set of rear brakes have hand actuation; worm and nut steering; vacuum fuel feed; semi-elliptic front and cantilever rear springs; frictional spring dampers are standard, and detachable wire wheels with Dunlop 33 x 5 in. straight-side tires, though clincher type Dunlops and pressed steel hollow-spoked wheels are optional. An oil gun system of chassis lubrication has been adopted.

Some of the main dimensions are:

| ome of the main dimensions are. | |
|------------------------------------|----------|
| Wheelbase144 and | 150½ in. |
| Track | |
| Overall length1901/4 and | 196¾ in. |
| Length of frame behind dash102 and | |
| Dash to center of rear axle 92 and | 98½ in. |
| Width of frame | 36 in. |

The price of the short wheelbase chassis is £1,850 (the same as the existing model) and of the long chassis £1,900.

British Bus Tests Show Economy of Pneumatic Tires

THE Operating Engineer of the Edinburgh Corporation Tramways Department has just issued a report concerning the behavior and costs of the pneumatic tires with which he has been conducting tests of increasing magnitude during the past four years.

Of particular note are the tests which commenced on July 26, 1923, when straight-sided pneumatics, singles in front and twins on the rear wheels, all 37 x 8 in., were adopted on twenty-four 31-passenger single-deck buses, four 27-passenger coaches and six 32-seated coaches, all having Leyland chassis with a gear ratio of 7.25 to 1 and unladen weights as follows: Buses, 11,200 lb., 27-seated coaches 9,630 lb., and 32-seated coaches 9,850 lb.

The average life of these tires has worked out at 45,000 miles (though one cover actually ran 48,000 miles) and the mileage cost for the set of six tires has averaged .48d., as compared with .595d. per mile with solid tires.

The gasoline consumption records have been taken over a lengthy period and the comparative figures are 6.697 miles per Imperial gallon with pneumatics and 5.534 miles with solids, which represents a saving of approximately 20 per cent on routes which are hilly and roads paved with wood blocks, granite setts and tar macadam in about equal proportions.

A notable effect has been observed in the use of pneu-

matic tires, viz., the increase of brake efficiency. Tests have shown that at 15 m.p.h. a solid-tired bus requires 34 ft. before it can be brought to a standstill, while with pneumatic tires the corresponding distance is 18 ft., the braking equipment being the same in both cases.

Some references to the upkeep policy adopted in respect of these tires will be of interest. The Operating Engineer points out that to achieve such results as those mentioned the tires need careful watching and a special staff is detailed to watch the braking, steering and pneumatic tire equipment; its daily duties include the removal of all stones from between the rear tires, examination of the nuts holding the detachable disc wheels, testing tire pressures and inspecting the Michelin alarm device which is fitted to each tire. This latter device, it may be mentioned, gives a continuous warning whistle when the tire pressure falls to 35 lb. The pressures maintained on the Edinburgh buses are 80 lbs. for the front and 85 lbs. for the back wheels.

After running a set for about 2,000 miles it is the practice to change over the left and right hand front tires, though the rear ones are left alone. The reason for this is that, partly owing to the camber of the city roads and other causes, the front tires nearer the sidewalks tend to wear sooner than those on the opposite side.

Tightening Up of Sales Machinery Factories' Next Big Job

Elimination of lost motion and waste in marketing is most pressing problem now facing automobile manufacturer, says Harry M.

Jewett at Taylor Society meeting. Methods discussed.

By Norman G. Shidle

MORE equitable distribution of the brains of management between production and distribution must come about in the next few years if continued success is to be experienced in car manufacturing.

"A buyers' market is replacing the sellers' market that has existed for many years, and chief executives will have to give a far greater share of their personal attention to marketing problems in the future than in the past."

That is the way Harry M. Jewett, president Paige-Detroit Motor Car Co., summed up current conditions in the automotive industry in a talk before the Taylor Society, which met in Ann Arbor May 14-16.

His view of the situation was confirmed by J. H. Collins, merchandising director, Chilton Class Journal Co., who pointed out that decreasing profits per car sale

will force better business methods for dealers who are to remain a permanent part of the business. Better methods in the retail field, he showed, can be obtained only through practical and active work on the part of the car manufacturer as well as by the dealers themselves.

The fact that merchandising is the chief automotive problem from now on was further emphasized by the strong stand against the practice of bringing out a new model every year which was taken by T. J. Litle, Jr., chief engineer, Lincoln division, Ford Motor Co., and vice-president of the Society of Automotive Engineers. Mr. Litle's plea for less hasty changes in design was based chiefly on the effect such changes have in the dealer organization and among car users. His approach to the subject indicated that the engineers themselves are placing greater emphasis on marketing phases of the business than ever before.

J. H. Marks, purchasing agent, Packard Motor Car Co., answering the question "Should automobile manufacturers make their own accessories?" said that the best plan to follow depends very largely on the individual com-

THE Taylor Society has rendered a distinct service to the automotive industry in bringing to the surface for discussion, at its national meeting in Ann Arbor, Mich., last week, a number of questions which are just now of very timely and vital interest to automobile manufacturers.

The Society is general in character, its purpose being to promote the science and the art of administration and management in all branches of industry. A large portion of its last meeting, however, was devoted exclusively to automotive subjects.

The Society was organized a number of years ago to perpetuate the name of Frederick W. Taylor, who did much conspicuous research work in connection with the problems of business management.

pany and on the particular accessory or part in ques-Fundamentally, he pointed out, the question will be answered by the economics of the particular case. The accessory will be built in the end in the way that will produce the best product at the lowest cost. He seemed to feel, however, that in the case of many accessories and most automobile companies the outside accessory manufacturer is in the best position to do the job.

Following out the idea that better marketing methods are essential in the future, Mr. Jewett cited specific examples of how a traveling auditor, sent out by the Paige company, had been able to turn losses into profits for distributors or dealers.

A surprising ignorance of ordinary common-sense business principles often is found in the retail organization, Mr. Jewett said. That

ignorance can be dispelled only by actual aid from the factory, backed up by consistent educational work. Mr. Jewett seems to feel that assistance as regards bookkeeping and accounting is one of the most important ways in which the car manufacturer can go about bettering his retail organization.

He said also that the time has come when the car manufacturer must know as much or more about a dealer's territory than does the dealer himself. So long as the car builder relies entirely on the dealer for estimates of the potentialities of a given territory, no yardstick exists by which the factory can gage the relative efficiency of the dealer. From now on every factory will have to dig in and find out all there is to know about every territory that it covers and what ought to be expected of its retailers in that territory.

Mr. Jewett sees a bright future for the sale of American automobiles in foreign markets. Our great home production, he pointed out, gives us low costs which enable us to sell cars in foreign countries without fear of successful competition from European manufacturers.

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He believes that American cars can outsell British cars in England from a dollar-for-dollar-value standpoint, even with a duty of 33½ per cent levied against American products. Throughout the world there is a great need for automotive transportation, he said, and the American manufacturers can look forward confidently to increasing sales in that field. His own company, he said, has done more foreign business in the first six months of this year than in the whole of any previous year.

Mr. Jewett urged strongly the establishment of adequate college courses for the development of salesmen and salesmanagers. "You can go to school and learn the fundamentals of engineering, of medicine, of agriculture or almost anything else," he said, "but there are few places where similar adequate training is available for salesmen. And nearly everything in this world has to be sold."

Manufacturers Must Help Dealers, Says J. H. Collins

Mr. Collins, in his paper on tendencies affecting methods of management, said in part:

"The past five years have witnessed the advent of the era of real competition in the automobile business. The age-old struggle for the survival of the fittest began to be manifest as soon as the industry was established on a sound commercial basis, and has grown keener as the demands of the buying public have grown more exacting.

"The number of car dealers has increased more than 45 per cent in five years. Likewise, car production has climbed by leaps and bounds during the same period. At first glance, it would appear that the great increase in car output would have resulted in a great increase in the business of the dealer organization, and in one sense of the word, it has.

"Considering the matter from the viewpoint of the number of cars sold, we find that Ford dealers sold on an average of 108 cars each in 1920, dropping off a trifle in the low years of 1921-1922, and then climbing to an average of 130 cars per dealer in 1924, with prospects of an equal volume of sales this year. Other car dealers averaged 36 new car sales per dealer in 1920, and reached a total of 46 new car sales per dealer in 1924.

"Turning now to sales in terms of dollars, we find conditions somewhat different. Over a five-year period, car sales per Ford dealer have held to a fairly consistent level ranging from a low mark of \$57,360 per dealer in 1921 to a high mark of \$76,718 per Ford dealer in 1923, and maintaining a level of more than \$75,000 per Ford dealer for the past twelve months. Conditions, however, have not been so good in the case of the car sales of all other dealers. Such car sales per dealer in 1920 averaged \$59,425. This figure dropped to \$29,625 during the depression of 1921, and climbed to an average of \$51,344 in 1923, and for the past twelve months dropped to only a trifle over \$40,000.

"The prosperity of the car maker is tied up permanently with the success or failure of the retailer dealer organization."

"The above figures suggest the car dealer's problem—
to handle a greater number of units, bringing in a
smaller gross income. How can this be done? By cutting needless sales costs. By adding supplementary lines
of parts and accessories to bring up the gross revenue.

By canvassing local markets more effectively. By checking trade allowances carefully.

"These problems are dealer problems. But if the dealer fails to make his profit, he becomes a liability to the car maker, and hence we are safe in stating that the best sales executives in the ranks of the car makers must come to regard these problems as their own, and must join with their dealers in working out a solution.

"One of the most hopeful signs for prosperity at the outset of the present year has been the substantial decrease in dealer failures for the twelve months just passed.

"The biggest retail selling problem facing the industry today is that of clearing used car sales.

"A survey among a number of typical car dealers in the Eastern and Middle Western states suggests the present ratio between used car and new car sales.

"Twenty-five typical car dealers in the Eastern states selling well known makes of cars reported 1924 sales as follows:

5,123 new cars 4,349 used cars

"Fifty typical car dealers in the Middle West reported 1924 sales as follows:

10,850 new cars 13,208 used cars

"If we accept these figures as typical they show that dealers today are selling more used cars than new cars.

"The automobile industry is gradually passing from the era of development to the era of stabilized mechandising.

"Management's greatest task in the next period of development will be to establish closer contact with the retail selling organization, and to make factory direction a real influence in building future sales.

T. J. Litle, Jr., Argues Against the Yearly Model Custom

Everybody didn't agree with Mr. Litle's idea about no-yearly-models, but it was evident before the discussion of his paper was over that he had a majority of those present on his side. E. J. Poag, Buick Motor Car Co., pointed out that companies had been successful both with and without a yearly model policy. He voiced the belief that Mr. Litle's idea would be feasible when the industry had reached its period of stability, but that he believed it to be still in its development period.

H. H. Rice, assistant to the president, General Motors Corp., who presided at the Friday afternoon session, pointed out the need for constant improvement in motor vehicles and the desirability of having something better every year. Nobody disagreed with his sentiments on this subject, the only debate arising in the method to be used in announcing and incorporating the improvements. Mr. Litle said in part:

"When the management decides that it must have a new automobile by the first of January, a great burden is suddenly imposed on the engineering department. The boards are swept clean and the new design is started with a rush. Sometimes only a few months elapse between the laying down of the design on the board and the production of the first model. An attempt is usually made to keep the work secret which greatly hampers the proper testing of the power plant and chassis, in any but expert hands.

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mistakes in this hectic rush for production, but the industry has become so accustomed to the making of mistakes that it takes them as a matter of course. And, knowing that the mistakes will be corrected later, they have got away from acknowledging a corrected mistake and now always call it an improvement. In fact, improvements of this character make it easier to create another model in the following year.

"Another great difficulty encountered in the hectic rush for the yearly-model is that invariably plans are switched at the last minute, due to some brilliant inspiration sprouted in the mind of some executive which proves a knock-out in the coming advertising campaign. That usually results in operating the engineering department on night shifts in the hot weather.

"And precisely the same thing applies to the tool department; for the tooling up of a great plant for a new model is an immense task, involving in one plant I know an expenditure of three million dollars.

"And some engineers never seem to be happy unless they can redesign the power plant at least once a year. Consequently companies following this practice never can expect to refine their product, as in all my experience I have never yet seen a really good automobile produced in less than 3 years' time.

"Aside from the physical difficulties encountered in the engineering and production departments, I believe that this yearly model policy is economically bad. Production methods are never developed as highly as they could be were the model to remain unchanged over a considerable period. A great economic waste is created when a plant is shut down during the tooling up period for a new production. As the management is hardly agreeable to maintain a pay-roll of idle men, many skilled mechanics are lost during this period. prefer to work in plants where employment is constant. When the plants do start, however, they have to make up for lost time, consequently many green men are employed and night work is resorted to.

"A great economic waste is suffered by the artificial depreciation due to the obsolescence caused by these

frequent design changes.

"Another great difficulty directly caused by frequent design changes is the fact that it is necessary to carry such a multitude of parts for servicing successive models.

"Another disadvantage to the service station manager is the one which he always has in training his mechanics. Some of his crew are only familiar with the present models and it is pityful to see them try to repair one of the old ones.

"It is highly essential that the manufacturer keep his product up-to-date for in no other industry do we find such a rapid development as in the automotive industry. Therefore, I do believe that serious attempts should be made to perpetuate a fundamentally good design over a period of several years.

"Why make very slight dimensional changes in shackle bolts so that they are not interchangeable with the last model; the same thing on connecting rods, many bearings, and innumerable small parts all over the structure. The hardware and locks on the bodies result in nervous annoyances to the owner who does not happen to live adjacent to one of these "Super Service Stations" pointed to so proudly by our leaders.

"In making my plea for an enduring design, I think that I have made it perfectly plain to you that I am in favor of constant betterment. You would, indeed, be much surprised if you were to make up your mind to do so, how you could improve the various component parts of the motor car and still have the interchange with the old parts."

Most Accessories Can Be Produced Cheaper Outside

Mr. Marks, discussing the question of accessory manufacture, said in part:

"Accessories can be easily divided into two classes, first, those parts of an automobile which through development and use, though formerly accessories, have become essential parts of all cars, and second, those appurtenances to a motor car that are not primarily essential to its operation.

"Under the first division come headlamps, starting and lighting equipment, speedometers, storage batteries and even windshields and tops, all of which at one time in the history of automobile development were considered as non-essential.

"All these parts, now considered as essentials, started as accessories and the businesses of making them are still carried almost universally on as separate ones.

"In the second classification we have still considered as attachments: bumpers, tire covers, spot lights, gasoline gauges, motometers, rear view mirrors and others, though some of these are now fast coming to be considered essentials.

"If we consider some of the other parts of a motor car not looked upon as accessories perhaps there may be some light thrown upon the subject under discussion.

"There are very few manufacturers in the business of producing an automobile who make coil and leaf springs, ball and roller bearings, wheels, tires and other similar parts, but these will be sufficient to illustrate the point

"Before the development of the motor car industry all of these parts were used for other purposes. Coil and leaf springs have been used as parts of other mechanical devices for many years, though perhaps in much smaller quantities, and these parts are, of course, still so used. It is logical, therefore, that, being produced in a separate plant as a separate business, they can be produced more economically than a single manufacturer of motor cars can produce them in his own factory, unless the quantities required are greater than those produced in any single plant.

"It is apparent, therefore, that certain parts that are essential to the construction and operation of an automobile have been and are generally more economically produced outside the plant of the car manufacturer.

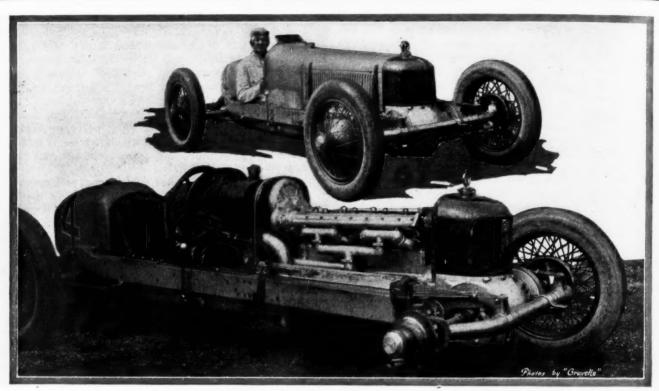
"In the case of the second division of accessories, those which have not yet become of universal use in all cars, including bumpers, gasoline gages, tire covers, motometers, spot lights, rear view mirrors and others, of course, those who do not supply them as original equipment are not concerned with the question of whether to buy them or make them.

"This class of article has a larger sale at present to the automobile owner than to the manufacturer so, of course, they must be made by others than the car manufacturer.

"Each case must be decided by itself, because that which may be more economical for one manufacturer to buy may be more economical for another to make.

"The answer to the question then, is it more economical for an automobile manufacturer to make or buy the accessories entering into the finished product,' depends upon two things, first, the design demanded in his product to best serve the purchaser, that is, whether he can afford to design an accessory peculiar to his car, and second, upon the volume of manufacture."

Two Cars with Front-Wheel Driver



R. C. Durant's front wheel drive Junior Eight which will be driven at Indianapolis by Dave Lewis, who is seen at the wheel in the upper picture

Stage Now Set for Thirteenth International 500-Mile Race. Guyot's Sleeve Valve Specials are Withdrawn.

NE of the cars which will be watched with considerable interest at Indianapolis on May 30 is the "Junior Eight" frontwheel drive shown above, This is the first time a car of this type has been entered in the big 500-mile classic. It will compete under the banner of R. C. Durant and will be driven by Dave Lewis, who is seen at the wheel. While placed in the race by Mr. Durant, the machine is of Miller construction, and another car of the same design, with frontwheel drive, will contest as a Miller Special. The picture in the foreground, giving a close-up of the "Junior Eight" engine, shows the supercharger mounted against the dash.

As far as can be learned at present, none of the other Miller Specials nor the Duesenbergs have radical

LIST OF ENTRANTS AND DRIVERS

For Thirteenth International 500-Mile Race at Indianapolis

> Duesenberg Spe Junior Eight Miller Special Miller Special Miller Special Skelley Special Skelley Special Schmidt Special Miller Special Miller Special Miller Special

Miller Special Wells Hornet Miller Special

Miller Special

| MILL | |
|-----------------------------|--|
| Entrant | |
| Duesenberg Bros. | |
| R. C. Durant | |
| Ralph De Palma | |
| Harry Miller | |
| Harry Miller A. A. Hartz | |
| Fred Comer | |
| H. J. Skelley | |
| Earl Cooper | |
| A. Schmidt | |
| Tom Milton | |
| Tom Milton | |
| *F. H. Wells | |
| Dr. W. E. Shattue | |
| Leon Duray | |
| Pietro Bordino | |
| Bancroft & Pope | |
| J. B. Doyle | |
| S. S. Smith | |
| H. D. Carpenter | |
| Ralph De Palma | |
| Harry Miller | |
| Locomobile Co. | |
| | |
| Herbert Jones | |
| J. Wonderlich | |
| | |

C. Kessler

J. Huelsman Green Enginee

Chas. Shambar

*Driver rece

| | Miller Special | |
|-------|------------------------|---|
| • | Fiat Special | |
| ope | Miller Special | |
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| | Smith Special | 1 |
| er | R. J. Special | Ì |
| 8.0 | Miller Special | 1 |
| | Miller Special | |
| | Junior Eight Special | |
| | Jones-Whittaker | |
| | Special | |
| | Miller Special | |
| | Kess-Line Special | |
| | Rotary Special | |
| ering | Co. Super Ford Special | |
| ugh | Hoosier Special | |
| ently | killed in practice. | |
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Special Peter De Paolo
Special Peter De Paolo
Special Phil Shafer
Special Mouree
Special Mouree
Special Bennett Hill
al Harry Hartz
al Fred Comer
ial H. J. Skelley
al Ralph Hepburn
Unnamed
al Tom Milton
Robert McDonough
Special Unamed
I Dr. W. E. Shattue
I Leon Duray
Pietro Bordino
I Frank Elliott
S. S. Smith
I R. J. Johnson
I L. L. Corum
I Unnamed
Special Earl Cooper
Ker Herbert Jones
I J. Wonderlich
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originally intended to enter three cars, especially built to his own designs in France.

Later he stated that it would be possible to complete only two of the machines in time for the race. One of these he expected to pilot himself, while the other was to be handled by Maurice Rouvier, a wealthy young French sportsman. A few days ago, however, Guyot notified the speedway officials that the

changed from last year. Practically all the cars, details of which are known, will have "blowers." Even a new straight eight Smith Special being built by the Green Engineering Company of Detroit for S. S. Smith is understood to be so equipped.

Albert Guyot, the veteran

French driver, contrary to

previous announcement, will

not be seen on the Indian-

apolis track this year. Guyot

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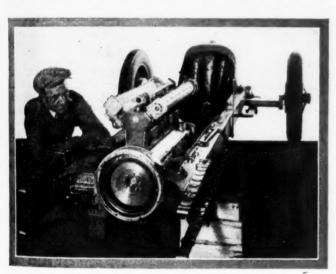
ive mong the Entries at Indianapolis

work of constructing the cars had been delayed and that he would be compelled to withdraw his entries entirely.

The withdrawal came as somewhat of a disappointment for the racing enthusiasts, as the Guyot cars were to employ motors of the single sleeve type and their performance would have been watched with more than usual interest on that account.

The only foreigners left in the race since Guyot's withdrawal are Pietro Bordino, who is already on the scene with his Bordino Fiat, and Albert Schmidt, of whose Schmidt Special nothing very definite is yet known beyond the fact that it is of French construction. The make and type are still mysteries.

Most of the drivers entered in the race are now on the bricks of the $2\frac{1}{2}$ mile oval. The cars which took part in the Charlotte, N. C., contest have reached Indianapolis with their drivers, among whom are Cooper, Hartz and



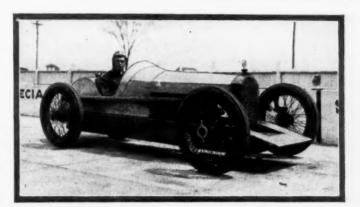
Stripped motor of R. C. Durant's front wheel drive racer. Note front end of frame, which is braced by motor and front axle only

Milton, who won first, second and third, respectively, in the 250-mile run at Charlotte on May 11.

As in last year's race, the race this year is limited to cars with engines having a piston displacement of not over 122 cu. in. Whether or not the winning car this year will better the the record made by Joe Boyer's Duesenberg last year is a much mooted question in racing circles. It is pretty much a question of supercharging, and since a lot of development work has been going on along this line since last year's record-smashing event, it is almost a safe bet to say this year the winning car will equal, if indeed not surpass, last year's mark.

Among the drivers who are entered to pilot mounts, the Miller Specials have some of the best known names: Tommy Milton, Earl Cooper, Ralph De Palma, Bennet Hill, Harry Hartz, Frank Eliott and McDonough appear in the early driver lists for the Millers, while Peter De Paolo, Phil Shafer and Peter Kreis are down to pilot three of the Duesenbergs entered by the Duesenberg Brothers, with the fourth pilot to be nominated later.

Subscriptions for the Citizens Lap Prize Fund, \$20,000 added purse for drivers in the race, are pouring in rapidly.



Charles Shambaugh, engineer from Lafayette, Ind., at the wheel of his Hoosier Special, a 4cylinder, chain drive car of his own creation which will be seen in the race

The purse is divided into 200 prizes—\$100 for the driver crossing the tape first in each of the 200 tours of the course.

It makes a race within a race, dividing competitors into two divisions—the "beat it" boys who go out for the lap prize at a furious pace, hoping to go on through the race, and the "conservatives," who shun the lap money and plan on the lion's share of the \$50,000 speedway purse by winning the race.

Total prizes will approximate \$100,000.

Tickets for the Silver Anniversary and Welcoming Dinner to automotive men which is to be given the night before the race at the Indianapolis Athletic Club by the Indiana Section of the Society of Automotive Engineers went on sale week before last. Out-of-town men who desire to attend can make reservations through George Briggs, chairman, in care of Wheeler Schebler Carbureter Co., Indianapolis. More than half of the capacity of the big main dining room of the club is taken by Indianapolis automotive organizations for their staffs and distributors who will attend the race. Among the speakers at the dinner will be Major Gen. Mason M. Patrick of the U. S. Air Service, C. F. Kettering, president of the General Motors Research Corp., and Charles M. Schwab.



Bordino in the Fiat which he will pilot at Indianapolis. With one exception, this will be the only foreign entry in the race

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Used Car Stocks Must Be Considered in Future Production Programs

Majority of dealers and distributors are now handling more second-hand machines than new ones and are unable to absorb any big increase in production

By A. V. Comings

A RECENT used car survey conducted by the Chilton Class Journal Company indicates very definitely that future manufacturing schedules of automobile factories are going to be influenced by used cars far more than they have been in the past, if motor car distributors and dealers are to continue their business at a profit.

This survey clearly shows that automobile dealers throughout a large section of the United States have very nearly reached the limit of their capacity to absorb used cars offered in trade and that any further large increase in new car cales will involve them so heavily in unprofitable used car transactions that they can not continue in business.

A condition that showed a dangerous growth during 1924 has, up to the present time in 1925, become acute, and many distributors and dealers alike are alarmed at what the future may develop if conditions are not altered.

Up to approximately two years ago the better type of automobile dealers seldom faced more than a single used car trade on a majority of their new car sales, and the loss that was usually taken on this transaction was not so great but that it left a fairly safe margin of profit to the dealer.

Today, however, even the good dealer faces a probable loss not only on the used car offered as part payment when the new car sale is made, but also on a second used car offered as part payment on the used automobile that figured in the first transaction. A third trade and even a fourth are not uncommon, all trailing in the wake of the original sale of *one* new car.

No business ever existed where the profit on one transaction could successfully be made to cover the losses on several deals dependent on the first, and present conditions in the trade show a growing tendency toward just this eventuality.

Survey Broad in Scope

The Chilton Class Journal survey covered hundreds of large and medium sized distributors of and dealers in automobiles made by manufacturers who are among the first ten volume producers, exclusive of the Ford Motor Company. Only distributors known to be successful, progressive business men of proved ability were queried, so that the resulting figures could be absolutely depended on to represent conditions among the best in the distributing branch of the industry.

The resulting figures showed that conditions are acute in the vast selling territory stretching from Pittsburgh on the east, to Spokane, Wash., on the west, and from all of the large and medium sized distributing centers comes the same story. In this territory, which absorbs a large proportion of the motor cars manufactured in this country, 63 per cent of the distributors and dealers reporting sold in their retail departments an average of 94 more used cars per distributor and dealer than they did new cars.

These distributors each sold an average of 219 new cars and 313 used cars at retail, and these figures tell better than adjectives whether or not these organizations are weaklings.

Used Cars Have Big Lead

Of all the distributors and dealers reporting, including those who sold more used cars than new and those who sold a greater number of new than used automobiles, there still remains an average of forty more used car sales per distributor and dealer than new.

Taking all figures, covering both types of dealer and distributor, they averaged each 268 used car sales as against 228 new car sales.

East of Pittsburgh, only 30 per cent of the distributors and dealers reporting had sold more used cars than new. These averaged 128 new and 198 used car sales each, or an average of 70 more used cars over new to each dealer or distributor.

Of the total on all eastern reports, the dealers and distributors showed an average of 192 new car sales per dealer or distributor to 164 used.

Comparison of eastern and western figures would tend to show that western distributors and dealers had secured volume of new car sales at the expense of used car losses.

There is every indication that the automobile industry has definitely entered into a new phase of the old reliable "used car problem." That motor car manufacturers will eventually have to take cognizance of the trend and enter into full cooperation with their distributive organizations to meet the changed conditions as they actually exist, seems certain.

Most manufacturers have definitely assured their distributors and dealers that the latter will not be forced to take more cars than they can sell at a profit, and in this assertion there is real hope for the dealer who knows from day to day the exact condition of his business. That factories must go further, however, and take into full consideration the facts developed by this survey in figuring the volume that may safely pass through their dealers' places of business at a profit to their dealers, seems assured.

Dealers who constantly base their orders from the factory on sales that involve two, three or four used car trades on a majority of their new car sales are heading for the discard on a slippery grade, and factories that encourage dealer purchases based on this kind of an

Figures Which Show the Preponderance of Traffic in Used Cars

HEREWITH are some of the figures gathered by the Chilton Class Journal Company from distributors scattered over the country from Pittsburgh to Spokane, Wash., in the leading distribution centers. Every distributor represented in these figures handles a car made by one of the ten leading manufacturers in the industry, exclusive of Ford.

1924 Sales

| In the \$6 | 600 to \$900 (| Liass | In the \$1, | 200 to \$2,000 | Class | In the \$3 | 3,000 to \$4,500 | Class |
|------------|----------------|-------|-------------|----------------|-------|------------|------------------|-------|
| Population | New | Used | Population | New | Used | Population | New | Used |
| 139,000 | 230 | 250 | 70,000 | 265 | 430 | 750,000 | 155 | 269 |
| 75,000 | 297 | 342 | 80,000 | 175 | 240 | 80,000 | 27 | 86 |
| 160,000 | 67 | 160 | 60,000 | 175 | 200 | 375,000 | 164 | 381 |
| 200,000 | 385 | 410 | 80,000 | 198 | 385 | 42,000 | 11 | 15 |
| 80,000 | 325 | 390 | 380,000 | 402 | 989 | 210,000 | 80 | 220 |
| 200,000 | 550 | 610 | 300,000 | 498 | 680 | 825,000 | 86 | 276 |
| 159,000 | 302 | 405 | 140,000 | 189 | 201 | 80,000 | 75 | 158 |
| | - 1 - 1 | 2/17 | 210,000 | 387 | 411 | 300,000 | 112 | 158 |
| | 2156 | 2561 | 350,000 | 301 | 375 | 1,600,000 | 785 | 1,164 |
| | | | 800,000 | 281 | 388 | (Several | cities) 535 | |
| | | | 45,453 | 76 | 122 | | 12 20 | 1727 |
| | | | 425,000 | 138 | 218 | | 1.0 | 2/2/ |
| | | | 40,000 | 151 | 176 | | | |
| * | | | 510,000 | 306 | 392 | | | |
| | | | 240,000 | 190 | 290 | | | |
| | | | 110,000 | 220_ | 502 | _ | | |
| | | | | 2952 | 1.709 | | | * |

outlet will one day reap the whirlwind in a disorganized distributive force.

The utter fallacy of forcing, or even allowing, a factory dealer organization to disintegrate through unsound methods which can be checked if the proper effort is put forth, has been shown only too clearly in the past history of the industry. It is far less expensive to effect measures that will preserve dealer organizations than it is to accomplish the tremendous task of building them up again after untoward policies have caused large numbers of retail outlets to close their doors.

So much progress has been made during the past year in factory-dealer cooperation toward mutual success that it would be a calamity, indeed, were there to come another wave of dealer elimination such as the industry has witnessed in the past.

The Value of Dodge Dealers

No better example of concrete dealer value has ever been given the industry than in the recent sale of Dodge Brothers to a group of bankers. Analysis of the assets that the bankers purchased shows that Dodge Brothers dealers were bought at \$15,000 each, and this is not an extreme value by any means.

There is no mystery in the cause of the present dangerous trend toward a surplusage of unprofitable used car trades.

Three years ago motor car merchants were dealing with a public in which there were several millions who had yet to purchase their first automobile. As these millions stepped up to the counter to buy their first car they had no used car to offer as part payment.

During the past three years these millions have been pretty thoroughly sold, so that today, with the exception of a certain percentage of first buyers who come into the market every year, the dealer is reselling to a public that has already purchased at least one car, and to this public every further purchase of new cars means the trading in of a used automobile.

Here is another angle. Production of motor cars in the four years previous to 1922 totaled 5,981,198. Out

of this production came a large majority of the used cars offered in trade to the 1922 dealer. There were, in round numbers, 38,000 dealers in business in 1922, so that, out of the previous four years' production there was a potential of 158 cars per dealer that would be offered in trade.

Today, with 48,000 dealers, the previous four years' production of 10,857,918 cars faces each dealer with a potential trade-in figures of 226 cars, an increase of 43 per cent.

These are figures that cannot be ignored.

Two other factors make more complicated the industry's present used car problem.

New car prices have been brought to such a low level that many people who would have been used car prospects in the past are now new car buyers, for they prefer to purchase new cars in the lower and medium price class at present prices, rather than used cars of a higher price

And the industry has so thoroughly sold the public on the closed car, and has placed closed cars on the market at such low prices, that the used open cars which form so large a percentage of trade-in offerings to dealers are, and will become even more so, a drug on the market. This latter influence will be felt in full force during the late summer and early winter months, and the distributor or dealer who goes into these months with a large stock of used open cars on the floor is going to be in no position to take new car allotments from his factory during the winter.

One Dealer's Balance Sheets

Typical of all too many dealer balance sheets is one of which I have recent knowledge, covering 1924. The distributor is considered one of the most successful in the business, and handles one of the most popular makes of cars.

Last year he sold over 400 new cars and over 300 used cars, and his net loss on his used car transactions was \$13,000. In other words, this distributor had to use his legitimate profit on 260 new car sales, (figuring his

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om the sed car neading es that of an profits at 5 per cent net) to pay for his losses on 300 used cars. He incurred all the risk and invested much money and energy in buying and selling a total of 560 new and used cars, that he might take his legitimate profit from the sale of 140 new automobiles!

This is exactly what is happening to a lesser or greater extent in a majority of the automobile distributor and dealer establishments in the United States.

I have letters from leading distributors of many successful makes of motor cars all over the country relative to the danger that lies in this newest phase of the used car problem. They tell, almost without exception, of the growing number of used cars they must trade under

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THIS illustration is taken from a circular recently distributed to a large number of prospects by a Middle West dealer who is the exclusive agent in his territory for a well-known car. He is supposed to devote his efforts principally to pushing the sale of the car he represents, but as a matter of fact he works just as hard to sell a number of other competitive makes which come to him second-hand through trade-ins. Present conditions make him an "exclusive" representative in name only.

present conditions, and express grave fears for the future unless conditions are altered. Many of them state that already, in 1925, indications are multiplying that the ratio of used car sales to new car sales will be greater this year than last. "A sour picture," one of them calls present conditions.

Some express hope that the Ford Motor Company's insistence that its dealers make money on used cars may spread to other manufacturing organizations. Others call attention to the excessive cost of maintaining establishments to handle the present enlarged volume of used car business.

One of the best says: "It has reached a point today that when you sell a used car you have a trade on a trade on 100 per cent of the used cars that are sold."

There is another angle to the constant increase in the distributors' and dealers' used car business that must eventually enter into factory attitude toward dealer activity in greater measure than it ever has in the past.

The factory sales manager has always thought about his distributor and dealer agents all over the country as "our dealer organization," and this is the term he uses in speaking of them, and the term the factory uses in its advertising.

This may have been a whole fact some years ago, but today the distributor and dealer is frequently selling as used cars nearly as many, and ofttimes more, cars made by competitive manufacturers than he is of the car he

is supposed to represent as an exclusive agent. He must, of necessity, advertise and his salesmen must tell of the "exceptional value" of competitors' cars on sale in his used car department, and many a sale of a competitor's new car is later made to a prospect who bought a good used car of the same make from a competitive dealer, and which proved good value to the customer.

That dealers do advertise their competitors' merchandise a casual glance over the columns of any daily newspaper will prove. Another enlightening example of this type of advertising is shown herewith, issued recently in circular form to a large mailing list by a midwestern distributor who last year sold over 200 more

used cars of many makes than he did of the new cars for which he is exclusive distributor in a rich and vital distribution territory. The name plates of his keenest competitive cars are shown very generously on the circular, for, after all, he has to sell these as used cars if he is to remain in business and continue to sell the volume of new cars that his factory expects him to sell.

A fair and impartial analysis of the new car market in this country will disclose that there is a definite necessity for the production of a certain volume of new cars each year. A definite proportion of these new cars will be sold to buyers who will offer no used car in part payment. A further proportion will be sold to buyers from whom dealers will have to take in used cars as part payment, and if this proportion of total production is not too great dealers can handle it and still make a legitimate profit on their total volume.

Beyond the total of these two production figures there comes a third division, and it is in this third division there lies the greatest danger to the distributor-dealer body. For this is the proportion of new car "demand" that comes from a public, ofttimes abetted by the distributor

or dealer whose attention is focussed on *volume* sales rather than *profitable* sales, that means used car trade-in offerings at prices and in volume that are dangerous in the extreme to the dealer organization.

Demand Should Be Watched

This third proportion of new car "demand" is in large measure a fallacious demand and the utmost efforts of both distributors and manufacturers should be coordinated to the end that this part of new car "demand" is not fulfilled to a point that will bring great losses and consequent disintegration to the selling organization.

The best and most business-like among motor car distributors and dealers are today exerting their greatest effort toward used car trading within their establishments that will not involve excessive losses. Future production of new cars must be predicated on the ability of the distributive organization of the industry to absorb used car offerings only up to a safe limit.

Production beyond that figure will invite danger.

MOTOR vehicle taxes collected in Germany amounted to 3,081,000 marks in February last and to 47,762,000 marks for the period April, 1924—February, 1925, inclusive. In the budget for 1924 the return from the tax had been set down at 50,000,000 marks.

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Just Among Ourselves

Debunking Conferences and Conventions

THE words "conference" and "convention" are getting into the same class with the word "efficiency." A smile nearly always accompanies their mention in familiar business conversations. Dressed up in their formal trappings and presented in printed form or in oratorical dissertation, the words still preserve much of their former dignity; but in intimate conversation they are popularly regarded as the bunk. This situation is not entirely due to the ironic views of caustic critics of business. It has arisen, partlyat least, because there has been a good deal of bunk in both conferences and conventions just as there is in efficiency. Once in a while we attend a debunked convention; once in a while we participate in a debunked conference. But those happy occasions are few and far between. Human desire to hold the limelight almost inevitably strings out most conferences and conventions to at least twice the length really necessary to impart the information or to convey the impressions desired.

When to Begin and When to Stop

ONE time in prep school we asked our English professor how long we should make a certain composition. He looked down sternly for a moment and then propounded the following simple maxim, which somehow or other has stuck in our mind ever since: "Say what you've got to say and then stop." We haven't always lived up to that high ideal, but we've had it for a guiding star anyhow. We offer it for the consideration of all convention speakers, paper readers, and conference dominators throughout the automotive industry. And we might add an idea of our own: "Don't write the history of the world before getting to the beginning of what is to be your particular contribution to the subject in hand." Now it seems to be time for us to stop.

Three Years to Produce a "Good" Automobile

ON'T believe that a good automobile can be designed and produced in less than three years," T. J. Litle, Jr., said last week at a meeting of the Taylor Society. If what he says is true there must be a lot of automobiles that have been put in the hands of the public before they were "good." We gathered that's what Mr. Litle was driving at anyhow, because he added later something like this: Designs have been put out before they were thoroughly matured and consequently have had in them a lot of weak spots. The public finds those weak spots and later the designs are changed. But this process has become so common that instead of recognizing these occurrences as mistakes, it has become customary to announce them the next year as "improvements."

Leaving the Verbal Decorations at Home

TALKING of Mr. Litle reminds us to say a word about this particular paper which we heard him read last week. We've been saying a lot of nasty things about paper readers recently because so often they don't get to the point of what they are saying until about 30 minutes after they take the platform, and because they often "if" and "and" so much that only a Houdini could untangle himself from the mental entanglements which they weave. Mr. Litle had something to say and we're here to state that he said it. When he finished there wasn't any doubt in anybody's mind as to what he meant. A lot of people gave him an argument—but it was an interesting argument because everybody knew what it was about. Would that all papers and all discussions had the same qualities.

Will Truck Ratings Be Abolished?

THE more we read about motor truck ratings the less we think we know about them. One thought does stand out, however, in the whole discussion. The solution seems to lie, not so much in one or another of the rating methods suggested, but in getting everybody to use the same method whatever it may be. C. J. Helm, Acme's general manager, analyzed the situation at a recent meeting of Motor Truck Industries, Inc., and ended up by saying that "The idea of abolishing tonnage ratings is worthy of consideration." By abolishing the ratings unfair comparisons and some legal difficulties would be obviated. But, as Mr. Helm went on to say, such abolition "carries with it other problems which would require study on the part of truck manufacturers."

Car Price Cuts and Rebates

SHOULD dealers be rebated for losses incurred on cars in stock when prices are cut? That's a question that we find a good many car executives talking about as we go around through the industry. Some companies have a definite policy of rebating and have carried it out for many years. Others do not rebate; and still others have rebated sometimes and sometimes have not. We havn't any accurate figures to show which practice is the most common, but we're going to try to get some. In the meantime we'd like to hear what some of our readers think on this important question. Charles W. Nash believes that the dealer is entitled to a rebate when prices are cut. Other executives disagree with him. What do you think?

N. G. S.

SPEAKING OF PRICE-

A CAR MANUFACTURER says:

"Talking of shifting the emphasis in automobile selling from price to quality is one of those things that sound fine in conversation but don't work out very well in practice.

"The car owner really is the basis of the whole thing after all. He is the one that governs prices and quality and everything else about the automobile business in the long run. We're all working for him fundamentally. He's the real boss of the industry.

"Everything we do is designed to give the public what it wants. Therefore, the public is responsible for the policies of the car manufacturer, whatever they may be."

HEY were talking about production, sales and car prices. For more than an hour they had been settling the problems of the industry.

One of the talkers is an executive of an important car company. The other is an economist. They had settled the same problems together many times before, but the industry refused to be revolutionized. Still they had a lot of fun. They turned the 101st discussional corner:

"But look what that company has done to the parts makers," the economist was saying. "Why they've beat down. . . ."

"You and your parts makers," the car man broke in. "Sooner or later you always get around to their troubles. I haven't any objection to their making profits, but Holy Cats! we car manufacturers have enough troubles of our own without worrying about those of the parts maker. He ought to be able to take care of himself."

Parts Makers' Prosperity

"Yes, but doesn't the prosperity of the parts maker have a pretty definite effect on the car maker's business in the long run? Your company is well established, stable and has every expectation of being a permanent factor in the industry. You consider that one of the very good reasons why people should buy your car. Your salesmen tell the buyer he can be sure he has a product backed by a responsible company which always will be in business to take care of his needs. Isn't the same thing true as regards the parts maker's relations with you? When you are the buyer, don't the same arguments hold good? And can you have a stable source of supply unless you are willing to pay a price which gives your supplier a reasonable profit?"

"Oh, I won't argue with you about that," came the ready admission. "As a matter of fact, I'm darned sure that every parts maker who is doing business with us is making money on the equipment he sells us."

"That is true. I know that from having talked with a number of companies from whom you buy your stuff. Your sales methods are conservative and your buying policies are built along the same lines. You've found the practice profitable, haven't you?"

Price or Quality

How the question looks from the standpoint of its importance to the industry as a whole, but more particularly as it affects the parts makers.

"Well, if you noticed our last balance sheet, you know the answer is 'yes.' But at that we aren't looking for a chance to make parts makers rich. If our business does them good, all right. But our primary object is to make money for ourselves. We aren't philanthropists,"

"No, you're not. You wouldn't last long if you were. And no parts maker with any sense expects you to be. But it does seem that a little more selling of quality and service and a little less emphasis on price would help the automotive industry all along the line. Of course, the parts situation never is going to be cleared up entirely so long as parts production capacity exceeds demand by so large a margin as it does now. But a shift in emphasis would help matters along considerably in the meantime."

"Well, who's going to do this emphasis-shifting, you're talking about? It's one of those things that sound fine in conversation but don't work out very well in practice. The car owner really is the basis of the whole thing after all. He's the one that governs prices and quality and everything else about the automobile business in the long run. We're all working for him, fundamentally. He's the real boss of the industry. I want to tell you that if we had any way of finding out just what the public wants we'd make it and leave everybody else so far behind they'd never catch up. Everything we do is designed to give the public what it wants. Therefore the public really is responsible for the policies of the car manufacturer, whatever they may be."

The economist meditated.

"The poor old public," he said finally. "You'll never find out what it wants, because it is they, whatever the grammars may claim. The public is just a large group of individuals each of whom has individual tastes. Luckily many of those tastes are common, however, so that a fair number of them can be influenced to like the same thing. That's what makes possible a certain degree of standardization. It's the different tastes, though, that make it necessary to have many styles of cars to satisfy all the demand. If taste were the only factor governing sales the problem might be more difficult than it is now. Income is so important a factor in most purchases that taste holds sway only with a limited area.

"But you'll never convince me," the economist went on, "that the public is responsible for making price a prime consideration in buying automobiles. There is a

Which is the . Wiser Selling Argument?

A manufacturer says the public is responsible for the emphasis that is placed on Price, but an economist thinks that the public wants Quality.

limit beyond which none of us can be induced to spend, of course, but that limit is flexible. It is shifted up or down very largely by the influences brought to bear on us from the outside. Few of us know exactly what we want when we start to buy, even when we are buying small commonplace items, let alone when we are investing in a big unit like an automobile. If you don't believe that, spend ten minutes in your corner grocery store some day, and listen to the women debating out loud with themselves as to whether they will take the breakfast food in the green box or the one in the pink package. If you don't shoot one of them in desperation, you'll learn something about buying habits."

"But what's that got to do with parts prices," broke in the executive. "You're dodging the point."

"If I weren't a good dodger I couldn't be an economist long—but this has something to do with parts prices. The point is this. When the car makers all get together and yell 'Price! Price! Price!' in all their contracts with the public, price certainly is going to gain importance in every buyer's mind. On the other hand, if everybody keeps shouting, 'Service! Quality! Longlife! Comfort!' and other things like that, the matter of price isn't going to loom so large in the consciousness of the average buyer. The result would be that car makers in general would be able to get a little better price for their products, they would profit more themselves, their dealers would be better off, and the parts makers would be able to sell them better equipment at a reasonable profit. That shows up today. makers that talk service in their advertising and minimize the price angle, almost invariably are providing fair profits to their sources of supply. And vice versa. And those that talk quality aren't all in the high-priced class, either. Just look the field over and see if you don't find that's true in a general way. You can think of exceptions, of course, but doesn't it hold true in a good many cases? Take your own case for example."

"I never thought of it in just that way, but maybe it's true. After all, we, as manufacturers, just as individuals, are masters of our own destiny to a large extent. It is true that the public is the ultimate boss and that he's the fellow we have to please, but that is quite different from passing on to him the blame for our ills. Guess that would be a little too much like Fatalism, wouldn't it?"

SPEAKING OF QUALITY-

THE ECONOMIST says:

"You'll never convince me
that the public is responsible for making price a prime consideration in
buying automobiles. There is a limit
beyond which none of us can be induced to spend, but that limit is flexible.

"When the car makers all get together and yell 'Price!' price certainly is going to gain importance in every buyer's mind.

"On the other hand, if everybody keeps shouting 'Service!' 'Quality!' etc., price isn't going to loom so large in the consciousness of the buyer. As a result car makers would be able to get a better price for their products and their parts makers would be able to sell them better equipment at a reasonable profit."

"It would, indeed; and Fatalism never promoted business success."

A moment's silence ensued. Both were trying to clarify the gist of the discussion. But as so often happens under similar circumstances each mind seized on one of the thoughts racing through it. Both started to speak at once, but the car executive won:

"We're right back where we started from. If the car manufacturer can't be a Fatalist and blame his troubles on somebody else, neither can the parts maker. The parts maker shouldn't blame his troubles on us any more than we should blame ours on the public. The parts maker has got to do his 'I-am-the-captain-of-my-soul' stuff, too."

"Keep Trying!"

"You bet he has," came the rejoinder, "and the parts men that are doing the best business today are those that are spending 90 per cent of their time trying to make good under conditions as they stand and only 10 per cent in crabbing about the conditions and trying to change them. Talking to some suppliers makes me suspect that the percentages are reversed sometimes. But you can't lose sight of the fact that the parts industry is a subsidary industry; it is dependent for its prosperity on the vehicle builders to a large extent, despite the enormous replacement field. Even that field has to be sold through the vehicle maker in many cases. At any rate, the real automobile merchandising power lies in the hands of the car manufacturers and their distributing organizations.

"The public influences the situation strongly, the parts maker has in his own hands the making or losing of much of his prosperity, but the attitude taken and radiated by the vehicle manufacturer probably has a greater influence on prices of parts used for original equipment than that of either of the other factors. Isn't that so?" With his question the economist stood up.

The executive rose, too. "You win," he said. "Pick up the marbles. I've often found it possible to outargue an economist, but I've never been able to out-talk one. Let's get some dinner."

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Gas Consumption with Balloon Tires Less Than with Fabric

Due to lower rolling resistance. High-pressure cords, however, show slightly less resistance than balloons, although latter offset this to considerable extent by saving energy in springs.

By P. M. Heldt

T has long been known that the rolling resistance of different types of tires differs widely, and that with the same tires this resistance is influenced by the degree of inflation. Naturally, a reduction of the rolling resistance results in a reduction in fuel consumption, and the subject therefore is of considerable economic importance.

An investigation as to how much the fuel consumption can be reduced by the use of proper tire equipment has been made by the Bureau of Standards and the results are compiled in Technologic Paper No. 283, "Effect of Tire Resistance on Fuel Consumption," by W. L. Holt and P. L. Wormeley.

Of the total amount of energy converted into the me-

chanical form in the engine, a certain amount is lost in engine friction, some more in friction of the various moving parts of the chassis, and the rest is consumed in overcoming air resistance (windage) and tire resistance. Tests on 17 different cars showed that the average engine friction, reduced to a basis of tractive resistance per 1000 lb. of car weight, is 21.7 lb., the extremes found being 17.5 and 26 lb.

Chassis friction is made up of friction in the transmission, rear axle drive and axle bearings, to churning of the lubricant and possible dragging of the brakes. In tests on nine out of 17 cars no increase in chassis friction was observable when the speed was increased 100 per cent and in the remainder of the cars the increase was very small, so that this factor was neglected. While it is probable that the chassis friction increases somewhat with the load, this increase is also small and has been disregarded.

Chassis resistance reduced to a basis of traction resistance per 1000 lb. varies between 3 and 33 lb. and does not seem to bear any direct relation to the car weight, hence the average value, 14.7 lb., has been used for all

The wind resistance was calculated by means of the equation

 $R = A \times V^2 \times 0.003$,

where

PUTTING it in general terms, the Bureau of Standards has demonstrated, as a result of the investigation with which this article treats, that the rolling resistance of balloon tires is slightly higher than that of high-pressure cord tires, but substantially lower than that of high-pressure fabrics.

As between balloons and high-pressure cords, therefore, on smooth roads, there is a slight difference in gasoline consumption in favor of the cords.

But this difference may decrease, or disappear altogether, on rough roads, due to the tendency of balloon tires to reduce losses of energy brought about by vertical movement of the car body.

The report concludes that, after all, the ability of a tire to absorb road shocks and its durability are more important than the slight effect it may have on fuel consump-

R =the wind resistance in pounds,

A =the frontal area of car in square feet.

V =the speed of the car

in m.p.h.

Values for A were taken at from 16 to 32.6 sq. ft. This resistance increases as the square of the speed and is an important factor in total car resistance, particularly at high speed. In the values of frontal area some allowance was made for the shape of the body. The wind resistance thus calculated applies to the case of a car moving in still air; if a wind is blowing the value will be increased or decreased by amounts depending upon its direction and

The resistance of tires was based on data contained in a previously issued Techno-

logic Paper (No. 240) together with data obtained in tests on 15 balloon tires. This resistance is assumed to be constant for different speeds and proportional to the axle load. Although tests have shown that there is an increase in resistance at the rear tires due to the transmission of power, this, being quite small, was disregarded.

Total Car Resistance

In Figs. 1, 2 and 3 the values which constitute the car resistance have been combined to show total car resistance based on a 3000 lb. car operating at speeds of from 10 to 40 m.p.h. Similar results were tabulated for a 2000 lb. and a 4000 lb. car, but it was found that the relation between the different items did not differ materially from those given, and that the conclusions drawn from Figs. 1, 2 and 3 may be considered of general application.

In Fig. 1, level road conditions are shown for a car having a maximum of wind resistance; in Fig. 2, level road conditions and a maximum wind resistance; and in Fig. 3, a maximum wind resistance with the engine doing work equivalent to driving a car up a 5 per cent grade. The last represents quite an extreme condition and one under which the average car does not often operate.

In all three figures the vertical height under line CD represents the total resistance which energy from the fuel is required to overcome if the car is equipped with tires having a minimum rolling resistance (8 lb. per 1000). The vertical height under line AB represents the total resistance if the car is equipped with tires having a maximum rolling resistance (22 lb. per 1000). Since the vertical heights represent total resistance, including friction of the engine, they are proportional to the indicated horsepower of the engine and, hence, also proportional to the fuel consumption. Accordingly, the relation which each resistance bears to the total resistance represents the proportion of total fuel consumption chargeable to each individual resistance and may be seen directly from the figures. By comparing the vertical height between lines AB and CD with the total height under AB, the maximum percentage difference in fuel consumption due to tires is easily found. It will be noted that possible difference due to tires varies from 9 per cent under the high-speed conditions of Fig. 3 to 28 per cent under the low-speed conditions of Fig. 1.

Extreme Conditions

These represent quite extreme conditions, both with respect to car operation and to the range of tire resistance. If fabric tires are eliminated, the rolling resistance of most tires is found to lie between 9 and 15 lb. per 1000 lb. axle load, a variation of 6 lb. If this value is taken in place of 14 lb. as used in the foregoing and a speed of 20 m.p.h. assumed as average, the maximum probable differences in fuel consumption due to any change in tire equipment vary from 6 per cent under the conditions of Fig. 3 to 12 per cent under the conditions of Fig. 1. Expressing this difference in more general terms, it may be stated that a difference in tire resistance of 1 lb. per 1000 lb. axle load will result in a 1 to 2 per cent difference in fuel consumption, or in a 1 to 2 per cent difference in miles per gallon of fuel.

To check the conclusions arrived at as to the effect of the tires on the fuel consumption, a car was driven over a level course about 3 miles long and the fuel consumption very accurately measured. The car was first equipped

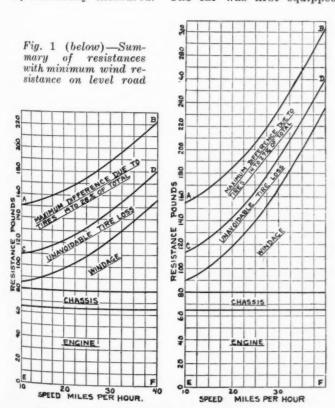


Fig. 2 (right)—Summary of resistances with maximum wind resistance on level road

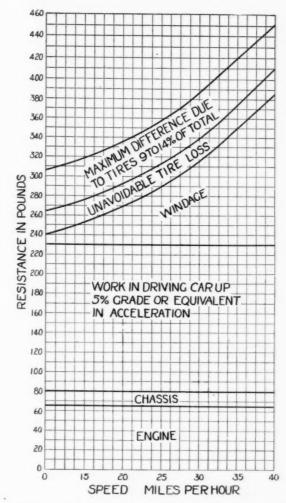


Fig. 3—Summary of resistances with maximum wind resistance on 5 per cent grade

with a set of fabric tires and then with a set of cord tires, the rolling resistance of which had previously been determined in the laboratory. Comparisons of fuel consumption were then made with the tires inflated to different pressures.

Under the condition of greatest difference in tire resistance as determined in the laboratory, there was also the largest proportional increase in fuel consumption. Similarly, under the conditions for which the difference in rolling resistance is least there was also the smallest loss in "miles per gallon." Some of the results were slightly inconsistent, but this is thought to have been due to unknown conditions during the tests, such as wind, tire temperature, traffic obstructions, etc.

While a blanket statement cannot be made that a change from high pressure to balloon tires will result in an increase in rolling resistance, as the difference between the two types is comparatively small and individual balloon tires may show either a higher or a lower rolling resistance than individual high pressure tires, as a class, balloon tires have a greater rolling resistance than high pressure cord tires, the difference depending upon the inflation pressure considered. In the absence of a recognized standard for inflation pressures, comparisons are made on a basis of 30 lb. per sq. in. for balloon tires and 45, 50 and 60 lb. for 3½, 4 and 5 in. cord tires, respectively. These latter are somewhat less than the generally recommended pressures, but are believed to represent more nearly actual operating conditions.

On this basis the average rolling resistance for highpressure cord tires is 11.8 lb. per 1000 lb. axle load, for balloon tires 13.5 lb., and for the now almost obsolete

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fabric tires (except the $3\frac{1}{2}$ in. size) 17.1 lb. Thus, it is seen that the gain in cushioning which is known to result from the use of balloon tires is obtained at an increase of 1.7 lb. in rolling resistance. This estimate may be rather conservative in that balloon tires in many cases are run at lower inflation pressures than 30 lb., which would result in a greater increase in rolling resistance over high-pressure tires. However, a considerably lower pressure could be used and still keep the rolling resistance below that of the fabric tire. Accordingly, it may be stated that from the standpoint of rolling resistance balloon tires as a class lie between the fabric tire and the high-pressure cord.

In all the data shown smooth road conditions are assumed. If the road is rough, another factor is added to the resistances which the fuel must overcome due to energy absorbed by the springs, snubbers, etc., caused by a vertical movement of the car body. This is an indeterminate factor dependent on the degree of road roughness,

stiffness of springs, etc. The use of balloon tires favors a reduction in any losses of energy due to this cause and thus tends, from the standpoint of fuel consumption, to counteract any increase due to a greater rolling resistance. The same reasoning might also be applied to high-pressure tires run at low-inflation pressures, but in this case the cushioning is not as great as would result from the use of balloon tires on account of the smaller air volume, and, in addition, their design does not permit of the use of the lower pressures without a considerable sacrifice in tire life.

In their conclusions the authors point out that the primary object of the tires is to absorb road shocks and that, while reduction of fuel consumption is an advantage, in judging tires as to their merits other features must also be taken into account, including their cushioning effect and their life as well as other factors of a similar nature.

Four-Wheel Passenger Trailer Designed for Buses

FOUR-WHEEL trailer that can be used for passenger transportation is being built by the Eadie Trailer Corp., 191 Ninth Avenue, New York City. It is known as the E. D. and is claimed to automatically track the vehicle hauling it without swaying at any rate of speed. Moreover, it is fitted with brakes which can be applied and released either mechanically or by air from the seat of the driver on the truck or motor bus, and it also has backing control.

From the drawing reproduced herewith it will be seen that both the front and the rear axle of the trailer are mounted on king pins at their center, and both can move around these pins for steering. Connected with each axle is a bevel gear sector, the two sectors being geared together by means of a shaft with bevel pinions at both ends

If the truck which hauls the trailer swings into a curve, the front axle of the trailer is turned around its king pin, because the draw bar is rigidly connected to it. But owing to the bevel gear connection, any swing to the right of the front axle is accompanied by an equal swing to the left of the rear axle. The horizontal distance from the pintle bolt to the rear axle of the truck is equal to the length of the drawbar, or to the distance from the pintle bolt to the king bolt of the trailer front axle, with the result that the front wheels of the trailer will follow in the tracks of the rear wheels of the tractor. The rear axle being swung around through the same angle as the front axle, but in the opposite direction, the rear wheels of the trailer will follow the same tracks.

One objection that is sometimes urged against vehicles in which the rear wheels are used for steering is that if such a vehicle stands alongside a curb or wall and the steering wheels are sharply deflected they will run into the curb or wall. It is claimed that this cannot occur with the E. D. trailer. The reason evidently is that if the rear wheels swing toward the wall the front wheels swing away from it to the same degree and the radius of the turn described by the trailer is perpendicular to the wall; moreover, the swing of the wheels takes place gradually, as the truck moves away from the wall, and the rear wheels therefore approach the wall only very slightly. This is allowed for by making the track of the trailer somewhat narrower than the track of the truck, thereby making it impossible for the trailer wheels to strike the curb, etc.

The trailer is believed to be of particular usefulness in the bus field for rush hour service. In many districts, as compared with the rush hours mornings and evenings,

the amount of traffic during the rest of the day is comparatively small and can be readily handled by the buses alone, and the capacity of the line can be practically doubled for the rush hours by the use of trailers.

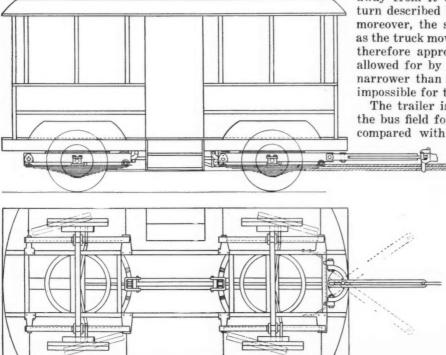


Diagram of E. D. trailer for bus service

EXPORTS of automobiles from 1923 to 17,151 in 1924, the makes chiefly involved being Ford, Oakland and Chevrolet. The imports of complete automobiles decreased materially in the course of the year, from 2357 in 1923 to less than 1000 in 1924. This is thought to have been the result of the imposition of a sales tax.

Automotive Progress Speeded by Advertising, Says Hoover

TISING
was not always looked upon as a vital part
of our economic
system. There
was a time when
advertising had
about the same
economic and
moral status as
the barker who

THE accompanying observations are from a speech by Herbert Hoover, Secretary of Commerce, at the opening of the twenty-first annual convention of the Associated Advertising Clubs of the World, at Houston, Tex., May 11.

shouts and ballyhooes outside of the circus tent.

"But it has found itself a most serious purpose. The older economists taught the essential influences of 'wish,' 'want' and 'desire' as motive forces in economic progress. You have taken over the job of creating desire.

"You have still another job—creating good will in order to make desire stand hitched.

"In economics the torments of desire in turn create demand, and from demand we create production, and thence around the cycle we land with increased standards of living.

"No matter how fine an addition to human comfort or pleasure a given article or service may be, unless there is a diffusion of knowledge and information with respect to it, it will not itself become quickly accepted and incorporated into our standards of living. Our standards of living are much higher today than they would have been were it not for the part played by advertising.

"These standards of living are sort of built up in layers. The lower layers are the plainest—food, clothing and shelter. Primeval nature herself stirs up enough emotions through hunger, cold and storms to keep 'desire' vividly active in this end of the scale of living. But the moment we have got beyond this stimulus the advertiser has full swing in stimulating 'desire' for better food, better clothing, better shelter, entertainment and so on over the whole range of the ten thousand and one things that go to make up superimposed layers of rising living standards. These upper layers have been added to, widened, and become more general because of advertising.

"The greatest single addition to our living standards in a generation has been the automobile. It has increased our national efficiency, stretched our national vision, improved our national health, and it has added some per cent of sheer joy, some dangers, and much excitement to daily life.

"I cannot believe for a moment that we should have had such a diffusion and such a general application of this great invention had it not been for the force of advertising. It would no

doubt have crept slowly into use over a few centuries if we were without this powerful agency, as did the first revolutionary discovery in transportation—the wheel cart. The news and use of that great invention traveled only as fast as some neighbor saw it with his own eyes. If you gentlemen had had the job of putting it over you might have speeded up the advance of civilization a few centuries.

"One profound economic effect of advertising is ofttimes overlooked—its influence upon production. The general knowledge and rapid distribution of an article, which can only be accomplished through advertising, creates large production and thus lower costs and prices.

"Modern advertising is the handmaiden of mass production. Moreover, your convincing announcements of a multitude of improvements on everything spreads a restless pillow for every competitor and drives him to further and faster exertions to keep apace.

"The notion that advertising in its broad sense is an economic waste has been long since abandoned. I have already mentioned its social use in advancing standards of living and its economic influence upon mass production and thus its contribution to lowered costs. More directly it is an economical form of distribution.

"The steady increase in volume of advertising in our news and periodical press is only one proof that it is such an economical form of distribution, for if it did not secure greater results at less expense it would decrease, not increase. The consumer, searching for an article or service, turns to the advertising columns of our press to learn just where to go after it, and so avoids the waste motion and loss of time and strength involved in blind search for fulfillment of his desire

"Advertising more than justifies its existence by thus contributing to more economical distribution."

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New U. S. Mail Planes Convertible for Passenger Service

Four manufacturers submit models which have proved successful in test flights. Two officially accepted. Will replace DH-4 types now in use. Many new safety features.

By Leslie S. Gillette

N response to the recent request of the U.S. Post Office, Air Mail Division, for bids on planes to supersede the DH-4 machines now in use, models and specifications of four types, built by as many private manufacturers, have been submitted.

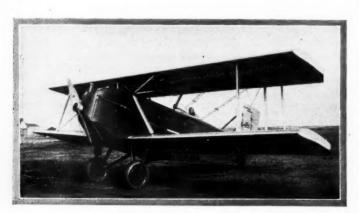
All four ships, which have been tested successfully in the air, are of the tractor biplane type powered with the Post Office "Liberty" motor and incorporate practically every recommendation specified in the bid proposals. Two of the planes already have been officially accepted and are now being tried out under actual service conditions over the experimental route starting from Chicago, by the Air Mail Development Division.

The manufacturers of these four planes are: Curtiss Aeroplane and Motor Corp., Garden City, L. I., whose product is known as the "Carrier Pigeon"; the Aerial Service Corp., of Hammondsport, N. Y., designating its model as the "Mercury"; G. Elias & Bros., of Buffalo, N. Y., with a design termed the "M-1" and the Cox-Klemin Aircraft Corp., of College Point, L. I., builder of the "Night Hawk."

The two machines already accepted by the Government are the Curtiss "Carrier Pigeon" and the Aerial "Mercury."

It is expected that several more machines will be submitted by different manufacturers before the final closing date, which is set for July 15, 1925.

This determined effort on the part of the airplane industry to provide acceptable designs cannot help but have beneficial results, especially with regard to the development of more efficient planes for use in commercial aviation. In designing the machines that are being prepared for the Air Mail Service, manufacturers have kept in mind the possibility of converting the ships to passenger carriers at short notice should the demand or occasion arise.



The Curtiss "Carrier Pigeon," showing the Reed metal propeller and "axleless" undercarriage

Since the conception of the Trans-continental Air Mail service five years ago, and up to the present 33-hour day and night coast-to-coast schedule, the trusty war-type DH-4s have been fulfilling their missions satisfactorily, although their design ship is now over nine years old. Nevertheless, the Post Office, in order to keep in step with progress, finds itself in need of more modern, efficient and safer machines with the result that proposals for bids for special Air Mail planes were broadcast over the country.

While the predominating feature of the accompanying abridged list of requirements and recommendations for the new mail planes is to provide increased mail carrying capacities at greater speed, considerable stress is being laid on building safer machines to insure further protection for the pilot in the event of emergencies.

The four planes, which are described separately herewith, do not depart radically from orthodox design and in accordance with the Post Office requirements were built primarily to make for easy production, quick replacement of the engine, rapid change of the equipment and special facilities for general maintenance.

Frontal Appearance Unusual

The frontal appearance of the Curtiss product, the "Carrier Pigeon," is unusual inasmuch as the top plane is considerably shorter than the bottom wing, this being due to the absence of a center section and the interchangeability feature of the upper and lower panels. The roots of the upper wings form a common joint above the center line of the machine, whereas the lower wings are attached to either side of the fuselage. Wood and steel are used in the construction of the fabric covered wings while the spars are made of solid routed spruce and all glued joints are eliminated. Ribs of Warren truss design give the structure a factor of safety of 25 per cent over that required. To permit easier working on the ship and in the handling of mail, three-ply sidewalk panels are screwed to the upper surfaces near the roots.

The fuselage and engine mounting are made of welded steel tubing employing the Warren truss principle, dispensing thereby with the usual bracing wires and insuring the utmost safety for the pilot and mails. To provide proper balance with all loads up to 1,000 pounds, the waterproof mail compartment, which is placed between the cockpit and engine, is at the same time located on the center of gravity of the ship. Access to the compartment from either side has been facilitated by large hinged doors having approved Post Office locks permitting the carrying of bulky packages.

Extreme care has been taken in fitting out the pilot's cockpit so as to relieve fatigue to the greatest extent on long journeys. Raised well above the fuselage, the cockpit is exceptionally roomy and permits of full vision in all directions, and an adjustable seat, which is shaped to

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fit the pilot's body, is constructed so as to allow the use of a "seat" type of parachute. The controls can be instantly changed to either the "wheel" or "stick" type to suit the pilot's convenience, while the rudder is operated by pedals with swiveling foot rests. Adjustable arm rests, a recent innovation, assist in relieving muscular strain.

Requiring only the disconnection of four hinge pins, gas line and engine controls, the 400 hp. "Liberty" power plant can be removed in a few minutes. All wiring, gas and pressure lines, run in a detachable tunnel on the outside of the fuselage, rendering them very accessible. Gas and oil filler caps of the automobile type extend outside the body, making for easy replenishments, while special attention has been paid to the locating of the fuel, oil and water drains.

Fire Extinguisher Provided

A seven quart fire extinguisher piped directly to the engine compartment, the latter being made practically air tight, insures complete smothering in case of fire. A fire-proof bulkhead is provided between the engine and mail compartment, the latter carrying beneath it the dropable fuel tank, a further insurance against fire in the event of an imminent crash. The radiator is of the underslung type and blends directly into the body lines. The temperature of the radiator is controlled by shutters operated from the cockpit. Special hood fasteners permit the engine cowling to be completely removed and replaced in less than two minutes.

Construction of the tail surfaces is similar to the main wings. The rudder, elevators and ailerons are identical, being interchangeable with each other and thereby reducing the number of spares to a minimum. All movable parts such as hinges, joint connections, etc., are provided with bronze pins of ample size to guard against rusting and excessive wear. The stabilizer is made adjustable in the air by a torsion and screw member running in bronze bearings, reducing the maintenance below that usually required in the chain and sprocket type.

An "axleless" type of landing gear has been provided to prevent fouling by brush, hay or snow in the course of take-offs and landings. Shock absorbers of the rubber "doughnut" type are employed, similar to those used on the PW-8 pursuit planes. Steerable and well sprung, the tail skid proper consists of a large high tensile steel tube mounted at the extreme rear of the fuselage.

Special Wings for Night Flying

A veneer covered fuselage, whose cross section is shaped in the form of an inverted "V," special sets of larger bottom wings for night flying and an effective tail skid brake to reduce the "run" after landing, are the salient features of the Aerial "Mercury" plane.

Combining the qualities of high lift with a great range of flying speed, the "Clark-Y" section permits of rugged wing construction. Beams of large section built up with spruce stringers top and bottom and 1/8 in. diagonal spruce sides carry the truss type of ribs. All wood parts of the wings are connected by glued and nailed joints. The leading edge of the wings is covered with veneer, giving a substantial, long wearing surface and, in addition, improves the efficiency of the wings. Balanced ailerons are fitted to all four panels and are of similar construction to the wings; the former are all interchangeable with each other, while the elevators are mounted on self-aligning ball bearings carried in grease-retaining and moistureproof mountings. The control cables are so arranged that even if one breaks or a lower aileron is carried away, control is still maintained over the pair of ailerons.

Longerons made from one length of spruce without

splices form the main support for the wooden fuselage which is covered with 3/16 in. birch veneer. Thirty inches wide at the top, so as to allow ample room for the pilot, the fuselage is widened out to 48 in. at the bottom, allowing a clear and unrestricted vision without the necessity of leaning out of the seat. Providing additional strength and finish and at the same time making a smooth surface which gives the pilot every chance to get out easily without danger or fouling his parachute in the event of an



Larger bottom wings fitted for night flying on the "Mercury." Note the metal air screw and Note the metal air screw and wing skids

emergency, the cockpit is lined with veneer. Additional features of the cockpit embrace an adjustable seat and rudder controls, a safety belt of special design, arranged so as to be incapable of release by accident, and including shock absorbers to protect the pilot's body during hard bumps. The placing in the lower wings of aluminum tunnels 4 in. in diameter, through which the landing wheels may be seen when in flight, enables the pilot to see if the wheels are on before making a landing. This gives him a chance to act should one wheel be missing.

The mail compartment, which is perfectly smooth inside, is situated immediately forward of the cockpit and is lined with medium gauge sheet duralumin. A bulkhead covered with asbestos and duralumin sheets is built across the front of the compartment, which, together with the metal lined sides and hinged top, affords complete mail

Specifications for New Mail Planes

Recommendations and major specifications desired by the Post Office to be included in the designing of the planes to be submitted for adoption by the United States Air Mail:

- One 400 hp. "Liberty" engine, provided by the Post Office, to be employed.
- Plane must be of rugged construction with pronounced factor of safety.
- Plane shall be designed for day and night cross-country flying.
- Maneuverability shall be good at all speeds down to stalling. Visibility shall be excellent, with as few "blind" spots as
- 6. Provisions for landing lights on the wings shall be provided.
- Crash-proof fuel tanks, conforming to army specifications, to be installed. (Ordinary type tanks to be used if installed in wings.)
- 8. Dropable fuel tanks by an instantaneous release desired.
- 9. Engine starters should be provided.
- Provision to be made for pilot wearing "seat" type of parachute.
- Cruising speed at least 95 m.p.h. Cruising range at least 450 miles.
- 12. Landing speed 50 m.p.h. or less. Service ceiling 15,000 ft. 13. Pay load (mail) not less than 1000 lb. Mail space not less
- than 50 cu. ft. 14. Each bidder must furnish evidence of his ability to execute contract if one is given him.
- Prices should be quoted on planes built in quantities of 3, 10, 25 and 50.
- Plane must be demonstrated by manufacturer, who also provides the pilot.

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protection from fire. A 3/16 in. veneer sidewalk, 3 feet wide, extending the whole width, is built on the lower wings to allow quick and easy handling of mail.

The 12-cylinder engine is mounted on a steel tube framework carried on adjustable ball and socket. Joints from the front end of the fuselage, and on this mounting also the complete water and oil cooling systems are carried. The complete unit in this form can be removed



The Elias "M-1" mail carrier, showing the spinner on the propeller to improve the streamline of the fuselage

and replaced easily. Mounted beneath the motor at a suitable angle to allow an unrestricted flow of air through its surface, the radiator, which is controlled by shutters made of streamline aluminum tubing is carried. Inspection of the motor can be made without stopping it as footholds are provided at convenient places on either side of the mounting. As would be expected, quick detachable engine cooling is provided.

The fuel system consists of a main tank holding 92 gallons placed under the fuselage directly beneath the mail compartment and center of gravity. An emergency gravity tank of 14 gallons capacity is mounted within the upper wing. Both tanks are of heavy gauge aluminum sheet with welded joints. An analysis of conditions made by the Aerial company indicated that a gasoline dump valve was more suitable for releasing the supply of gasoline should the pilot be forced to make an emergency landing rather than the dropping of the complete tank. The valve consists of a hinged cap on the sump of the main gasoline tank, allowing an almost instantaneous discharge of the fuel, even if the tank is full.

Specifications and Performance Data

| • 1 | "Carrier Pigeon" | ' Mercury *'' | "M-1" | "Night Hawk" |
|------------------------------|---------------------|---------------|--------------|-----------------|
| Length | 28-7 Ft/in | 28-6 Ft/in | 28-0 Ft/in | 30-2 Ft/in |
| Height | 12-1 Ft/in | 11-4 Ft/in | | 12-0 Ft/in |
| Span-Upper Wing | 39-11/2 Ft/in | 42-11 Ft/in | 40-0 Ft/in | 44-8 Ft/in |
| Span-Lower Wing | 41-11 Ft/in | 47-1 Ft/in | 40-0 Ft/in | 42-8 Ft/in |
| Chord. Upper Wing | 6-6 Ft/in | 7-0 Ft/in | 6-6 Ft/in | |
| Chord. Lower Wing | 6-6 Ft/in | 7-0 Ft/in | 6-6 Ft/in | |
| Dihedral Upper Wing | 0 | | 11/2 deg. | |
| Dihedral Lower Wing | 2 deg. | | 11/2 deg. | |
| Wing Section | U.S.A27 | Clark-Y | Eiffel-385 | |
| Area-Main Wings (incl. aile- | | | | |
| rons) | 505 sq. ft. | 650 sq. ft. | 497 sq. ft. | 550 sq. ft. |
| Area. Hor. Tail Surfaces | 65.6 sq. ft. | 69.9 sq. ft. | 87.0 sq. ft. | 58.0 sq. ft. |
| Area. Vert. Tail Surfaces | 28.1 sq. ft. | 32.0 sq. ft. | 35.0 sq. ft. | |
| Weights. Empty | 3208 lbs. | 3640 lbs. | 2857 lbs. | 2910 lbs. |
| Weights. Useful Load | 1856 lbs. | 1857 lbs. | 1810 lbs. | 2330 lbs. |
| Weights. Fully Loaded | 5064 lbs. | 5497 lbs. | 4667 lbs. | 5240 lbs. |
| High Speed | 126 m.p.h. | 125 m.p.h. | 130 m.p.h. | ++ |
| Landing Speed | 51.7 m.p.h. | 51.9 m.p.h. | 48.0 m.p.h. | ++ |
| Climb | 1,100 ft/mn | 1,140 ft/mn | 1,100 ft/mn | 11 |
| Ceiling | 16,700 ft. | 16, 400 ft. | 16,000 ft. | 11 |
| Range | 590 mi. | 500 mi. | 450 mi. | 11 |

*Fitted with night flying wings

Radical changes in design from the usual type have been made in the tail skid, as it is due to the breakages of skids with a consequent damage to tail and end of fuselage, that planes are frequently put out of commission. The skid is placed in an extremely accessible position, and since it has been found that most failures of the skids occur through the bending of its members, all factors in the new skid are either in direct tension or compression at all times. A manganese steel plow blade is mounted at the base of the skid which, though normally out of use, can be used to form a drag and stop the machine in the event of a landing in a confined space or to avoid a collision on the ground. This plow blade, which is capable of taking a heavy load, is mounted on a shear pin, the latter being of such a diameter as to shear off when the load becomes so great as to threaten damage to the fuselage. A further feature is that a large eye is made part of the shoe casting forming the extreme end of the skid and into this fits a hook on the special one man handling "dolly" provided with the machine.

Landing Gear

Welded steel struts mounted on ball and socket joints and carrying 36 by 8 in. tires, comprise the landing gear. The shock absorbing unit consists of a stack of 6 in. diameter hard rubber discs which act in compression and relieve the fuselage of severe shocks. The control column is of the "stick" type which is made of heavy gauge duralumin tubing which, besides being exceedingly strong, is non-magnetic, thereby avoiding the necessity for "compensating" the compass. In furtherance of this idea, no magnetic fields are allowed near the compass, all wires being paired, while the part of the motor switch having a field is placed on the front of the fire wall for this same reason. For changing the angle of the tail surface the control wheel is placed on the side of the cockpit within easy reach of the pilot, while the parachute flares are carried in a compartment at the left side of the seat, easily available for inspection and positive release.

Clean orthodox lines characterize the new Elias "M-1," which is a single bay wire braced biplane. No center section is employed, the two upper wings being supported at the center by two inverted "V" struts. Another pair of struts running from the upper longerons of the fuse-lage to the short wing stubs permit the attaching of the lower planes and the landing gear.

Mail Compartment

A duralumin lined mail compartment having shelves and loops for carrying special loads is built into the center of the welded steel tubing fabric-covered fuselage. Arrangements similar to those mentioned in the previous descriptions have been provided in the pilot's cockpit, which is adequately protected by a windshield extending the whole width of the fuselage.

The engine mounting is made entirely of welded steel tubing and only the removal of six bolts and engine controls is necessary to detach the entire engine assembly from the machine. Carried under the fuselage, the radiator, which is in two sections and fitted with shutters, is directly in the free air. Under the non-skid sidewalks on either side of the body, two dropable gasoline tanks, each holding 40 gal., are located. A 10-gal. gravity crash-proof fuel tank is also provided, while a \(^3\)/8 in. asbestos fire wall protects the mail compartment.

Wood is employed in the make up of the wings, the spars being of the box type and the ribs having ply webs with solid cap strips. Internal drag bracing is double and of tie rod construction. Unbalanced ailerons are fitted on all four wings, control horns being used on the lower wings only. Conventional arrangements are employed in stries

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the empennage, the stabilizer having a one strut brace on the lower side only. Adjustment of the stabilizer in the air is by a calibrated wheel in the cockpit. Taking out three bolts permits the removal of the rudder and fin, the former being the only balanced control. Ball bearings are used throughout the control system, while the tail control wires are carried on the outside of the fuselage from behind the pilot's cockpit.

The mounting of an aluminum spinner on the propeller adds considerably to the streamlining of the fuselage. Providing a track eight feet wide, the "axleless" undercarriage is fitted with shock absorbers located at the wheel hubs and carried in a streamlined housing.

The "Night Hawk"

The Cox-Klemin "Night Hawk" embodies practically every feature desired by the Post Office and is the latest plane to be submitted for tests. An original feature of the machine is the speed with which it can be converted from a mail carrier to a passenger ship. There are two openings to the cargo space, one a side door on the left side and forward of the wing and the other a hatch on the rear top of the compartment. The hatch is the full width of the fuselage and is easily replaceable by another hatch containing an upholstered cockpit opening for the passenger. On the rear wall of the cargo space a folding seat for the passenger is provided. On account of the acute angle of the top of the fuselage, an unrestricted view is obtainable by both pilot and passenger.

Other than the use of thick section wings, streamline steel tubing wing struts forming an inverted letter "N," and quick detachable wings, the construction of the plane follows usual practice throughout. Divided undercarriage balanced ailerons fitted on the top wing only, ply covered wood fuselage and built up wooden wings are the special features of the machine. As will be seen from the accom-



"Night Hawk" convertable mail and passenger carrier built by the Cox-Klemin Co. The balanced ailerons can be seen on the upper wings

panying photograph, the design of the ship is exceptionally clean, being devoid of any radical departures from the ordinary.

To present the specifications and performance figures of the machines in a convenient manner and to facilitate a comparison of common factors, the data available on all four machines are classified in one tabulation herewith.

Renault V-Type Engine Makes Record on 8066-Mile Flight

A RENAULT twelve-cylinder V-type 60 degree engine of 5.26 by 7.08 inches bore and stroke (1858 cubic inches) was used on the Breguet XIX biplane with which Captains Arrachart and Lemaitre completed their flight of 8066 miles from Paris to Dakar on the West African coast and return to Paris via Timbuctoo, the Sahara desert, Casablanca, Barcelona and Lyons. The same engine was used throughout the journey.

The first stage of the flight, from Paris to Villa Cisneros, 457 miles north of Dakar, constituted a world's non-stop record, with a distance of 2175 miles. The flight was accomplished in twenty-four hours with gasoline consumption at the rate of 17.2 American gallons an hour. It had been intended to reach Dakar in one flight, but owing to the plugs fouling, a landing had to be made 467 miles from this town, with 132 gallons of gasoline in the tanks. The load having decreased, the engine was being run on a partially closed throttle and this caused the plugs to soot up. It is claimed that had the pilots been given instructions to run the engine at full throttle from time to time, this landing could have been avoided.

The return trip was made in comparatively easy stages, with the exception of the flight from Timbuctoo, across the Sahara desert. Owing to a sand storm the machine was blown off its course and had to land in Southern Algeria, after covering 1211 miles. Only enough gasoline was taken for this distance.

Separate forged steel cylinders with sheet steel water jackets are used on the engine employed for this flight. Four valves per cylinder are inclined in the head and operated by an enclosed overhead camshaft driven by bevel gearing from the rear. The crankshaft has seven bearings and the I-section connecting rods have white metalled bearings. Pistons are aluminum alloy. Two S. E. V. magnetos were used and four Zenith carbureters, two on

each side of the engine. Five oil pumps are used for the combined forced feed and circulating oil system. In addition, the oiling system comprised the Renault centrifugal purifier.

In Next Week's Issue

THE marketing phase of the automobile business is under closer scrutiny today than it ever has been before. The manufacturer who has a firm grasp on his sales reins, who knows what percentage of the total business he ought to get and is getting, is in an extremely advantageous position. In next week's issue—May 28—there will be an article on Business Planning by A. V. Comings which describes how it is possible to estimate and prepare for future sales by plotting the sales curves of the past.

This issue will also contain a report of the proceedings of the thirteenth annual meeting of the United States Chamber of Commerce, now in session at Washington. The report, of course, will be written especially for Automotive Industries, which means that it will sift out the topics that are of special interest to automotive men.

Another feature of this number will be a description of the N. A. C. C. 1925 Service Show and Convention at Detroit.

Exports of Cars, Trucks, Tires and Parts for

| | | | GASO | | TRUCKS | | | | | | | | | | | |
|----------------------------------------------------------------------------------|---------------|---------------------------------------|-----------------------|--------------------------------|--------------------|------------------------------|------------------|----------------------------------|--------------------|-----------------------------|-------------------|---------------------------------|----------------|----------------------------|--------------|------------------------|
| COUNTRIES | Up | to \$500 | \$500 to \$800 | | \$800 to \$1200 | | \$1200 to \$2000 | | Ov | er \$2000 | Up to 1 ton incl. | | 1 to 2½ tons | | Over 2½ tons | |
| | No. | Value | No. | Value | No. | Value | No. | Value | No. | Value | No. | Value | No. | Value | No. | Value |
| Austria Azores and Madeira Islands Belgium | 192 | \$2,000 73,716 | i | \$746 16,825 | 1 1 96 | \$1,290 1,008 100,612 | 1 | \$2,841 1,300 54,179 | 14 | \$2,602 38,649 | | \$34,763 1,161 | | •••••• | ****** | ******** |
| Bulgaria Czechoslovakia Denmark Finland | | 3,457 | 47 33 | 37,543 20,153 | 101 28 | | 5 | 1,649 14,750 7,228 | 1 2 | | 13 | 32,491 | 2 | \$2,257 | 2 | \$4,30 |
| France | 11 13 | 4,847 6,413 | 3 22 55 | 2,365 15,314 39,051 | 82 68 13 | 94,256 73,635 13,096 | 93 10 | 38,730 142,275 13,984 | 12 38 5 | 29,616 101,626 13,829 | 48 | 22,397 3,021 | 2 11 | 2,214 15,862 | | ******** |
| Hungary Iceland and Faroe Islands Italy | 1,061 | 305,473 | 3 | 1,506 2,436 1,324 | | 4,242 8,030 | 2 | 1,509 5,488 3,660 3,109 | 3 | 2,275 8,798 | | 187,899 1,818 | | | | ******** |
| Latvia. Lithuania. Malta, Gozo and Cyprus Islands Netherlands. | 12 | 3,504 10,635 | 44 | 34,218 | 1 1 135 | 990 1,300 150,592 | 72 | 107,357 | 19 | 62,921 | 1 | 1,750 | 8 | 10,022 | 1 | 4,00 |
| Norway Poland and Danzig Portugal | 59 | 1,990 27,961 | 16 3 10 | 10,963 2,190 7,815 | 16 3 44 | 3,677 47,635 | 5 | 7,910 | 6 | 14,320 5,817 | | 12,846 | | 1,977 | | |
| Rumania Russia Spain Sweden | | 10,242 12,670 | 103 | 784 75,912 35,969 | 194 99 | 201,517 | 109 | 5,488 164,134 49,664 | 2 2 35 11 | 6,800 98,906 27,245 | 26 50 | 11,952 18,064 23,398 | | 15,990 23,759 | 4 | 18,22 |
| Switzerland | 257 | 109,460 | 1,074 | 37,288 726,270 | 118 4 383 | 127,474 3,549 400,843 | 26 6 412 | 38,843 8,977 637,388 | 120 | 52,151 | 2 | 132,537 | | 63,480 | 1 | 5,31 |
| Irish Free State | 2 | 300 982 | 21 | 15,992 | 3 | 4,322 3,403 | 1 | 1,597 1,372 | 2 | 6,600 | ***** | | | ******** | | |
| British Honduras. Canada Costa Rica Guatemala | 305 1 2 | 85,553 360 900 | 363 3 | 238,270 2,348 | 383 70 17 | | 272 | 387,961 7,687 | 62 1 | 159,946 2,250 | | 54,231 1,332 3,039 | 151 | 222, 147 15, 458 | 16 | 35,43 |
| Honduras | 4 1 33 | 1,593 300 14,681 | 3 8 12 | 2,328 6,743 8,537 | 8 11 | 8,608 12,297 | 1 8 | 1,372 11,033 | | 9 700 | 6 | 2,777 3,683 | 2 | 2,596 | 3 | 12,88 |
| Salvador Mexico Miquelon, etc. Newfoundland | | 265, 702 1, 667 | 179 | 6,991 130,365 3,051 | 310 | 6,026 301,648 4,217 | 79 | 9,373 110,455 | 34 | 2,500 84,459 | 365 1 | 136,828 550 | 51 | 3,590 62,286 | 2 | 10,65 |
| Barbados. Jamaica. Trinidad and Tobago. | 15 10 | 5,534 4,430 | 14 10 | 10,659 8,364 | 8 1 | 8,149 995 | 1 3 3 | 1,356 3,792 4,402 | | | 1 13 2 | 710 4,588 877 | i | 1,535 3,048 | | |
| Other British West Indies Cuba Deminican Republic | 637 | 3,310 204,585 18,014 976 | 133 | 95, 253 2, 897 825 | 65 10 5 | 10,830 | 29 6 | 43,532 8,671 1,348 | 21 | 58,941 | 187 14 3 | 352 55,461 5,520 1,056 | 20 | 26, 190 | 8 2 | |
| Dutch West Indies French West Indies Haiti. Virgin Islands | 8 | 3,667 | 3 | 1,917 | 10 | | i | 1,379 1,517 | | • • • • • • • • • • | 13 1 | 1,324 6,328 555 | 4 | 5,259 | | |
| Argentina | 1,493 | 616,676 | 449 9 299 17 | 336, 107 6, 487 231, 307 | 312 | 289,773 | 69 12 | 126, 946 | 32 40 | | 347 193 | 12,798 | 15 4 4 | 27,961 6,857 4,606 | 5 1 6 | 17,70 3,30 19,14 |
| Chile. Colombia. Ecuador. British Guiana. | 27 | 59,665 10,527 2,551 1,468 | 29 1 | 11,996 22,211 743 | 36 3 | 26,385 3,536 | 14 | 18,064 22,692 3,517 | 7 2 | 20,521 7,010 | | 53,653 30,214 1,312 | 24 17 | 30,329 25,447 4,434 | 4 | 44,73 21,71 |
| Dutch Guiana. French Guiana. Paraguay. | | · · · · · · · · · · · · · · · · · · · | | | | | | | | | 14 | 4,568 | | | | |
| Peru Uruguay Aden | 736 78 | 18,318 210,523 31,433 | 34 20 26 | 26,103 15,920 19,088 | 37 67 72 | 73,029 | 5 9 11 | 6,744 13,569 16,044 | 7 | 19, 922 19, 721 | 48 208 32 | 21,306 50,871 15,279 | 108 4 12 | 126,542 5,776 16,898 | 4 | 2,88 11,85 |
| British India. | 25 | 11,569 3,150 | 124 8 20 | 98,211 5,777 16,395 | 38 11 8 | 10, 154 | 5 2 | 7,758 2,676 | 1 | 2,156 | 72 52 | 53,389 40,771 | 92 47 1 | 51,379 62,040 1,072 | 5 3 | 7,82 7,99 |
| Straits Settlements Other British East Indies China Chosen | 45 | 17,683 | 38 | 29,412 | 7 | 7,354 | 8 | 12,516 | i | 2,044 | 15 | 9,150 | 4 | 4,569 | | |
| Java and Madura Other Dutch East Indies French Inde China Hejaz, Arabia and Iraq | | 5,788 | 17 | 66,961 13,702 | 21 4 3 | 4,695 3,109 | | 15,850 2,890 | 1 | 12,706 2,603 | 2 | 1,839 | 8 | 10,735 8,193 | | |
| Hongkong Japan Kwangtung Palestine and Syria | 16 | 4,994 | 3 22 16 | 2,023 15,882 | 20 | 4,195 20,841 | 14 | 21,905 25,877 | 5 | 11,230 | 1 | 600 | | 4 007 | | |
| Palestine and Syria Persia Philippine Islands Russia | 53 136 | 33,780 16,156 52,562 | 22 | 12,081 | 98 | | 26 | 4,958 36,156 | 5 | 10,408 12,423 | 87 | 9,541 34,140 | 12 | 13,416 | | |
| Siam. Turkey. Australia | 1 1,730 | 900 450 672,249 | 1,626 | 1,523 1,095,017 | 1,376 | | 188 | 284,688 | 69 | 154,215 | 120 | 113,594 | 122 | 151,390 | 26 | 121,74° 30,830 |
| New Zealand . British Oceania . French Oceania . Other Oceania . | | 129,597 | 104 6 1 | 72,918 4,410 675 | 205 2 2 2 | 2,315 2,152 | | 155,419 1,226 | 6 | 15,263 | 34 1 2 | 36,482 1,000 | 67 | 88,597 | 19 | 30,00 |
| Belgian Congo British West Africa British South Africa | 23 | 8,220 120,367 | 5 376 | 4,083 283,784 | 453 | 478,056 | 72 | 105,544 | 2 | 6,265 | 15 17 56 | 5,280 16,415 36,864 | 52 12 | 56,457 14,061 | | |
| British East Africa. Canary Islands. Egypt. Algeria and Tunis. | 30 | 14,460 3,284 3,058 6,420 | 20 5 12 | 15,418 4,155 9,198 | 31 | 32, 282 4, 284 13, 612 | 2 3 | 4,033 2,654 4,860 | 1 | 3,360 2,426 | 32 2 7 | 15,978 1,130 3,760 | ·····i | 1,174 | 2 | 15,00 |
| Algeria and Tunis Other French Africa Liberia Liberia | 51 | 6,420 17,805 | 3 | 2,354 | | 1,934 | | 1,248 | | | 111 | 49,980 330 | 1 | 1,500 | | |
| Madagascar | 3 | 1,473 | 1 | 747 | 27 | 2,049 8,051 | | | | | 7 | 3,500 | | | | |
| Other Portuguese Africa | 8 | 11,954 3,927 | 5 | 3,282 | | \$5,670,751 | 1.000 | | | A1 004 PP | 10 | 2,816 5,000 \$1,536,242 | | \$1,197,812 | 100 | \$435,471 |

| for | Marcl | n, 19 | 25 |
|-----|----------------------|-------|----|
| | ELECTRIC VEHICLES | PARTS | C |

ustries 25

Value

\$4,309

18,220

35,436 12,888

27,356 5,570 17,705 3,302 19,146 44,735 21,710

2,889 11,855 7,829 7,995

\$435,479

Canadian Exports

| FLEC | TRIC | | TIRES PASSENGER CARS | | | TIRES | | | | | PASSENGER CARS | | | | | | | | | |
|--------|----------|-------------------|----------------------|------------------------------|-----------------|-----------------|-----------|---------------|----------|---------------------|----------------|-----------------|-------|------------------|--------|----------------|------------|---------------------------------------------------------|--|--|
| VEHI | CLES | PARTS | Cas | ings | Inn | ers | Se | lids | Up | to \$500 | \$500 t | o \$1000 | Over | \$1000 | TRUCKS | | PARTS | COUNTRIES | | |
| No. | Value | Value | No. | Value | No. | Value | No. | Value | No. | Value | No. | Value | No. | Value | No. | Value | Value | | | |
| | | \$447 1,124 | 551 20 | \$9,194 152 | 519 | \$1,111 | | | | | | | 1 | | | | | . Azores and Madeira Islands | | |
| | | 480,376 830 | 1,864 | 33,356 | 1,296 | 3, 156 | | | | \$1,657 | 3 | \$2,207 | | | | | \$1 130 | Belgiam | | |
| | | 1,712 | 377 | 8,826 | 211 | 657 | 95 | \$2,952 | | | | | | | | | 4 000 | | | |
| ****** | | 869,323 1,839 | 11,277 | 105,043 | 16,671 1,199 | 18,672 2,275 | 129 | | 30 6 | 2,474 | | | | | | | | | | |
| ***** | | 805,350 54,068 | 1,550 265 | 24,619 8,384 | 1,868 330 | 4,583 1,243 | 12 | | | | 2 | 1,498 | | | | | 46 | France Germany Greece | | |
| | | 6,659 278 | 626 | 8,955 | 563 | 871 | 110 | 2,980 | 33 | 14,174 | 2 | 1,895 | | | | | | Greece Hungary | | |
| | | 842 129,825 | 109 1,344 | 1,077 13,796 | 177 874 | 177 1,912 | 14 | 425 | | | | | | | | | 1,342 | HungaryIceland and Faroe IslandsItaly | | |
| | | 21 350 | | | | | | | | 2,502 | | | | | | | | Latvia Lithuania | | |
| | | 407 61,738 | 4,669 | 49,024 | 4,073 | 7,662 | 62 | 1,884 | | | | | | | | | 403 | Malta Gozo and Cyprus Isla. | | |
| | | 19,283 24,739 | 1,650 1,399 | 29,995 18,847 | 2,446 1,820 | 4,337 3,381 | 27 | | | 406 | | 17,054 | | | | | 14 | Netherlands Norway Poland and Danzig | | |
| | | 3,957 1,004 | 260 - 171 | 3,273 2,256 | 265 328 | 516 604 | | | 24 | 9,875 | 2 | 1,255 | | 1,083 | | | | Rumania | | |
| | | 23,502 98,101 | 25 2,481 | 323 23,311 | 32 2,598 | 126 4,410 | | | | | | | | | | | 1.852 | Russia Spain | | |
| | | 83,283 6,264 | 3,099 573 | 44,591 14,787 | 2,725 371 | 3,287 1,599 | | | 72 | 29,160 | 10 | 9,829 | 1 | 1,340 | | | 39 | Sweden | | |
| | \$1,600 | 1,126 554,670 | 12,897 | 143,846 | 7,069 | 10,172 | | 35, 147 | | | 10 | | | 2,438 | | | 62 740 | Turkey England | | |
| | | 37,404 3,930 | 176 | 1,191 1,327 | 472 190 | 462 274 | 1,737 | | 11 | 4,554 | | 0,100 | | 2,100 | | | | | | |
| | | 539 | | 1,327 | 190 | 43 | | | 1 | 150 | | | | | | | 34,131 | Yugoslavia, etc. United States British Honduras | | |
| 2 | 4,879 | 3,406,094 | 1,272 | 23,148 | 1,155 | 4,079 | | | | 2,845 | | 550 | | | | | | | | |
| ***** | | 1,798 5,658 | 204 418 | 3,042 7,637 | 210 354 | 905 | 12 | 280 | | 2,845 | 1 | 300 | | | | | 11 | | | |
| | | 3,252 2,255 | 95 145 | 2,616 $2,045$ | 137 276 | 394 519 | | 212 | | | | | | | | | | | | |
| | | 14,095 3,595 | 1,810 188 | 22,758 $3,337$ | 2,154 258 | 3,329 641 | 160 | 2,888 | | | | | | | | | 5 | Panama Salvador | | |
| 3 | 8,445 | 155, 449 71 | 7,859 | 93,407 | 6,556 | | [224 | 7,060 | | | | | | | | | 8 | | | |
| 1 | 200 | 3,807 2,442 | 510 18 | 5,050 181 | 539 24 | 919 84 | 2 | | 6 | 8,285 1,748 | 6 | 4,208 631 | | | 2 | \$644 1,168 | 30 | | | |
| ***** | | 13,821 5,902 | · 396 | 4,078 7 1,836 8 89,882 | 258 264 | 339 474 | | 488 | 12 17 | 5,833 | 6 | 4,106 4,630 | | 1,116 | 5 | 1,610 | 112 386 | Trinidad and Tobago Other British West Indies | | |
| ****** | | 6,467 139,036 | 7,856 | | 14 092 | 201 20,350 | 1,164 | 108 31,329 | | | | 4,070 | | 1,149 | | | 38 | Other British West Indies | | |
| ****** | | 10,941 1,276 | 1,491 326 | 17,648 3,002 | 2,256 314 | 3,205 529 | 40 | 1,618 | 9 | 809 | | | | | | | 10 | | | |
| ****** | | 2,227 8,162 | 91 172 | 728 2,507 | 282 | | | | ī | 406 | | | | | | | | Dutch West Indies French West Indies Haiti | | |
| ***** | | 485 241,446 | 50 20,276 | 518 218,878 | 90 | 109 | | 14,320 | 224 | 89,896 | 120 | | 62 | 80,764 | | | 05 105 | Haiti Virgin Islands Argentina | | |
| ****** | | 1,816 299,290 | 175 | 3, 143 126, 150 | 237 | 559 | 18 | 331 | 46 | 17, 936 106, 012 | 1 | 628 | 12 | 14,653 14,436 | | | 126, 599 | Bolivia | | |
| ****** | | 82,912 23,654 | 1,987 | 30,347 14,748 | | 2,202 2,881 | 99 | 4,246 | 13 | 5,276 | 7 | 5,751 1,884 | 19 | 19,986 | | | 64 | | | |
| ***** | | 2,394 2,806 | 145 12 | 2,563 120 | 239 20 | 576 | | | 18 26 | 7,120 | i | 997 | 6 | 7,271 | | 2,314 | 70 355 | Ecuador | | |
| | ******* | 267 62 | 49 | | | | | 131 | | 9,810 | | 000 | | | | 2,314 | 355 | Dutch Guiana French Guiana | | |
| ***** | | 494 61,971 | 1.511 | 23,702 | 1 000 | 3,788 | | 905 | | 4,896 | | 9 050 | | 4 040 | | | | Paraguay Peru | | |
| ***** | | 52,199 | 3,158 | 43,334 | 1,836 3,679 | 5.980 | 136 | | | 46,500 | 14 | 3,953 12,683 | | 4,042 25,706 | | | 10 | Uruguay | | |
| ****** | | 29,199 509 | 5 | 55 | | | | 0.000 | 19 | 7,658 282 | | 40.40 | | | 4 | 1,288 | 4,948 | | | |
| ***** | | 56,070 7,435 | 1,632 391 | 16,691 4,936 | | 501 | 141 | 3,988 432 | | | 16 | 13,558 | 1 | 16,978 | 24 | 8,068 | 4,088 | | | |
| | ******* | 27,749 374 | 612 | 6,465 76 | | | 41 | | 293 | | | | | | | 19,354 | 3,364 | Other British East Indies | | |
| ***** | ******* | 7,114 | 1,016 | 11,533 | | | 41 | | 9 | 3,808 | | | | 28,582 | | | | | | |
| ***** | ******* | 21,422 7,654 | 2,395 | 24,159 | 720 | 1,135 | 159 16 | | | 124,245 | 29 | 24,675 | 30 | 35,262 | 96 | 33,887 | 34,761 | Other Dutch East Indies | | |
| ****** | ******* | 551 293 | 24 | 360 | 144 | 225 | 8 | 157 | 4 | 1,674 | | 10,314 | 1 | 1,136 | | | 288 | French Indo China Hejaz, Arabia and Iraq | | |
| ***** | ******* | 7,919 107,635 | 4,921 | 45,273 | 1,399 | 2,204 | 305 | 3,862 | 16 | 1,612 5,746 | | 26,995 | | 13,844 | | | | Hongkong Japan | | |
| ***** | ******* | 158 14,624 | 5 92 | 1,750 | 128 | 13 379 | | | 12 | 5,020 | | | | | | | | Palestine and Syria | | |
| ***** | | 30,502 | 9,299 | 89,104 | 252 5,731 | | | 10,087 | | | | | | | | | | Persia Philippine Islands | | |
| ***** | ******* | 490 1,285 | | | | | | | 28 | 7,664 | | ****** | ***** | | 73 | 24,377 | 8,199 | Russia Siam | | |
| ***** | ******* | 904 268,896 | 9,494 | 133,169 | 9,150 | 24,236 | | 27,912 | | 282,902 | | 616 | 3 | | 516 | | 58,880 | Turkey Australia | | |
| ***** | ******* | 64,031 538 | 4,383 | 61,526 606 | 3,741 | 6,975 | 533 | | | | 307 | 239,702 | | 23,047 | | 3,213 | 407 | | | |
| | | 439 885 | 4 | 27 10,916 | | | | | 12 | | | 1,805 | | | | | 3.344 | Other Oceania | | |
| ****** | | 912 19,559 | 5 94 | 107 1,282 | 6 | 22 | | | 36 | | | | | | 36 | 13,632 | 9 066 | Belgian Congo | | |
| ****** | ******* | 106,593 8,328 | 1,579 386 | 23,436 4,741 | | 3,124 | 26 | | 1,465 | 509,792 | 53 | 33,782 | 2 | | 106 | 31,368 | 64,878 | British South Africa British East Africa Canary Islands | | |
| ***** | ******* | 3,323 7,293 | 316 | | | | | | 17 | 7,864 | | 1,400 | | | | | 53 | | | |
| ***** | ******* | 492 3,773 | 146 | 1 941 | 150 | 401 | | | 30 | | | 1,400 | | | | 966 | | Algeria and Tunis Other French Atrica | | |
| ***** | ******** | 218 | | | 158 | 481 | | | 2 | 906 | | | | | 3 | 900 | | | | |
| ***** | | 65 256 | | 120 | 8 | 18 | | | | | | | ***** | ******* | | ******* | | | | |
| ***** | ****** | 4,271 | 16 | | 8 | 23 | | | 67 | | | 566 | | ******* | | ******* | | Portuguese East Africa | | |
| | ******* | 218 435 | 50 | | | | | 472 | | | | | | | | | | Other Portuguese Atrica Spanish Africa | | |
| 7 | \$15,124 | \$3,645,044 | 151,352 | \$1,777,093 | 164, 138 | \$268,089 | 8,086 | \$216,525 | 5,302 | \$1,879,963 | 948 | \$718,749 | 245 | \$303,307 | 1,078 | \$356,700 | \$596,640 | Total | | |

Concealed and Fictitious List Prices Menace to Truck Industry

Buyers' confidence shaken by present practices. Manufacturers should decide whether to sell through dealers or merely to them.

= *By J. R. Spraker =

Vice-president and General Manager, Atterbury Motor Car Co.

"NE of the evils of selling motor trucks

is that the dealer, having no list price to be

guided by, makes his own deal on the basis

of getting what he can, in which case no two

'Nobody knows what the bottom price

"This condition throws fear and distrust

into the mind of the truck buyer, who, when

he buys a truck on this basis, never knows

whether he has got the bottom price and

wonders whether he might not have done

still better had he shopped around a little

cars are sold at the same price.

really is.

longer.'

to the dealer on a flat price basis

NE of the most important things that the motor truck industry has to deal with today is the question of bettering sales conditions and one of the points to be considered is the advisability of a fixed list price against a flat price to the dealer, with no fixed list

In a recent issue of a motor truck magazine there were ninety-two makes of trucks listed. Of these, fifty-nine published fixed list prices, while the other thirty-three listed their products as "Price on application," which showed conclusively that the opinion on this subject was pretty evenly divided.

Upon analyzing this list, however, we find that of the

thirty-three manufacturers who were not publishing a list price, thirty-two are manufacturers of assembled trucks. This situation, in our opinion, might lead a prospective purchaser to believe that the manufacturers of assembled trucks really have no established price on their product.

There is a real value in sound, publicly announced list prices for trucks; furthermore, the truck buyer is entitled to know how much a truck is worth. Confidence in the integrity and fairness of the truck industry must be built if commercial vehicles are to make the rapid prog-

ress justified by economic trends. It is not fair to the truck buyer if the same truck is sold at different prices in different places. There will always, of course, be a variation in freight, etc., but the truck buyer should be

industry if such concerns as Ford, Buick, Hudson, Paige, Dodge and other well known makers were to sell their product to their dealers at a flat price and allow the dealer to make his own price.

than the motor truck industry as far as selling methods are concerned. The dealers have learned their lesson and are not allowing ridiculous prices for old cars; in fact, a great many of them are not taking old cars in trade at all except at junk prices, and they are demanding larger initial down payments on time payment sales, as well as a shorter space of time to pay for the car. This has all been brought about by their past experience. Thousands of passenger car dealers have gone out of business because of pursuing unsound business methods, and most of those left are trying to do business along sane lines.

The truck manufacturer must decide whether he prefers to sell his product to or through the dealer.

If the manufacturer regards the dealer as his customer, then he must expect to make concessions to the individual ideas, standards and ambitions of the customer-

dealer. If, on the other hand, he regards the dealer as a part of his sales organization, he will select those merchants who will promote the sale of his product along the lines that he, the manufacturer, would do were he in the retail market.

One of the evils of selling motor trucks to the dealer on a flat price basis is that the dealer, having no list price to be guided by, makes his own deal on the basis of getting what he can, in which case no two cars are sold at the same price. Nobody knows what the bottom price really is. This condition throws fear and distrust into the

mind of the truck buyer, who, when he buys a truck on this basis, never knows whether he has got the bottom price and wonders whether he might not have done still better had he shopped around a little longer.

In truck selling today, too little stress is laid on the merit of the truck itself, the manufacturer and service behind it, and too much stress on the price. On the other hand, an extremely high list price is not the solution of the problem either. The intelligent motor truck buyer knows that the high list prices are fictitious and are for the purpose of allowing for the fictitious trade-in allow-

There is a definite relationship between the sales price, the complete article and the parts which enter into the assembly of that article. The list, or sales price, should be fixed to allow for a fair margin of profit for the dealer, and where an old truck is to be taken in trade only its actual value should be considered. If it is junk, the allowance should be based on junk values.

able to purchase the same truck at substantially the same price anywhere throughout the country. In the passenger car industry, for instance, all the manufacturers have an established list price, and we can all appreciate the demoralization in the passenger car

The passenger car industry is much better organized

^{*}From a paper presented by Mr. Spraker at a meeting, April 23, in Wabash, Ind., of the Motor Truck Industries, Inc.

EDITORIAL

Motorists and Motor Laws

THOMAS P. HENRY, president of the American Automobile Association, criticises motorists for being mentally lazy and says that much of the traffic congestion is due to the failure of car owners and drivers to familiarize themselves with local motor ordinances.

He is no doubt right to some extent. But why lay all the blame on the motorists? What about the lawmaking bodies that pass and promulgate the ordinances? There is not a motorist in existence with a mind sufficiently nimble to absorb, digest and retain the provisions of one-half of 1 per cent of all the motor ordinances and laws that have been passed by the various townshps, villages, boroughs, cities and States since the automobile became important enough to have legislation written about it.

Every community in the United States has its own set of traffic laws and scarcely any two laws are alike in all particulars. We believe that most motorists are familiar with the laws in force in their home districts, but this knowledge is of no benefit to them when they drive afield. They don't always violate rules because they are mentally lazy. They just have no way of knowing what the rules are.

The solution of this problem lies in the simplification and standardization of motor laws so that they will be the same everywhere in their essential features. Uniform traffic signal systems and highway markers are among the most pressing needs. Lazy and hazy legislation is more to blame for present conditions than any laziness of mentality on the part of

motorists.

Squeaking Brakes

NE of the greatest annoyances in connection with the operation of automobiles is the tendency of the brakes to squeak. A great many cars seem to be prone to this trouble for which there is no simple, generally applicable remedy.

Since noise consists in the vibration of the air at certain rates, the cause of the squeaking is obviously vibration of a part affected by the application of the brakes. This vibration is undoubtedly due to alternate grabbing and sliding of the brake shoes on the brake drum, which in turn is due to deformation of the drum under the pressure with which the shoes are forced into contact with it.

With both band and shoe brakes, but particularly with the latter, there is a certain amount of distortion of the brake drums, which latter are generally made of soft pressed or drawn steel with no great amount of rigidity. If rigid drums of high carbon steel with air cooling ribs on the outside could be

used, no trouble of this kind need be experienced, but this type of drum is far too expensive for the moderate priced car. A single flange on the inner edge, as sometimes used on pressed steel brake drums for trucks, would be a more practical solution of the difficulty.

One expedient for reducing the tendency to squeak consists in cutting the ends of the lining at an angle instead of square. There are good grounds for believing that one of the principal causes of squeaking is the pressure wave which results from the highly concentrated pressure at the forward edge of a piece of lining. Anything which tends to relieve this pressure has the effect of reducing the tendency to squeak. Cutting the edges of the lining at a considerable bias is one way of achieving this result and cushioning or bolstering the lining a short distance from the end is another.

Week-end Insurance Policies

WHY not short-term accident and liability insurance policies to cover motorists during weekend or special vacation trips? The suggestion was made in a letter addressed recently to an English motor magazine by one of its subscribers. The idea is novel and interesting, at least, and upon close analysis there seems to be no good reason why it should not some time be capitalized by the insurance companies which make a specialty of accident and liability risks. It is nothing new to write insurance against rain and twins. And a much closer parallel can be found in the practice common in America these many years of issuing special short-term accident policies to protect railroad and steamship passengers for the endurance of the trip, which frequently requires not more than ten or twelve hours, after which the coverage expires.

The author of the idea describes his own particular case as follows: "I am penned up at business all the week, and sometimes until late at night. The only chance I have for motoring is on a few Saturdays and Sundays, and an occasional summer evening, if the weather is favorable, for, say, eight months of the year at the outside. Yet I pay for car insurance just the same as another owner-driver who motors all the year round. Why should I? I think car insurance companies should inaugurate a new system by issuing to such as myself (and there are thousands like me) week-end or monthly insurance.

"I would have no objection to paying 2s. 6d. (62c.) to 5s. (\$1.25) premium for coverage over a week-end to be free of liability; or say, 10s. (\$2.50) to £1 (\$5) for any month I require it for certain months of the year. But I do not see why I should pay the year round for car insurance when I am not using the car more than one-third of the time; or less.

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Our Industry Today

Predictions Made That May Production Will Exceed April Records—All Grades of Cars Share in Prosperity—Sales Carefully Watched

NEW YORK, May 20—The throttle is open wide at the automobile factories and predictions are freely made that April's new high production record of 420,373 cars and trucks will be exceeded by about 20,000 in May. Demand in virtually all sections of the country has so far proved ample to absorb this production. Stocks in dealers' hands are still low, and in the case of the most popular makes, shortages continue to be the rule.

All grades of cars are sharing in the prosperity. Several makers of low-priced vehicles are behind in their orders, and at least one manufacturer of high-priced automobiles is more than 30 days late in making shipments. The shortages are mainly in closed cars, due to delays in receiving bodies from the equipment manufacturers. Several of the larger body-building concerns have expansion programs under way.

The prospect is that production will continue at approximately the current rate until about the middle of June, at which time a slump in consumption is looked for. The expectation of a need for curtailment of operations at the automobile factories is reflected in a slowing down of orders placed with original equipment manufacturers for delivery after the first two weeks of June.

Hand-to-Mouth Buying

The industry never was in better position to curtail production. Virtually all buying of raw materials and equipment has been on a hand-to-mouth basis, with the result that stocks are negligible in quantity. Inventories of finished cars are at a similar level. Yet at the present rate of output it is realized that a sudden and serious slump in demand might quickly turn shortages into surpluses, and the sales situation, consequently, is being watched most carefully.

A factor that may tend to prolong the spring sales season this year is that the public is apparently satisfied to buy the 1925 models without waiting for the new lines to appear later on. One of the results of this tendency should be a more even distribution of buying over the year, and the popularity of closed cars is another force that is flattening out the sales curve.

DRIGGS BUYS AXLE PLANT

DETROIT, May 21 — The Waterloo Avenue plant of Timken-Detroit Axle Co. has been sold to Briggs Manufacturing Co. for a price between \$750,000 and \$1,000,000, according to a Briggs announcement. The property includes two factory buildings of 300 feet of manufacturing space and 10 acres of land. The factories will be changed over into body plants.

Service Convention Begins at Detroit

Has 99 Exhibits of Equipment— First Session Draws 400 to Meetings

DETROIT, May 20-The National Automotive Service Convention, in conjunction with which the Automotive Maintenance Equipment Show is being conducted, opened a three day session here today. The convention is held under the auspices of the National Automobile Chamber of Commerce with the collaboration of the Society of Automotive Engineers, Motor and Accessory Manufacturers Association, National Automobile Dealers Association, Automotive Manufacturers Association, Automotive Equipment Association and Automotive Electrical Association.

There are 99 exhibits installed at the show and they are representative of the entire field of automotive maintenance and service equipment. It is stated that this number represents 80 per cent of the manufacturers in this field. In addition to these exhibits, many of the trade associations are represented.

Warner Presides First Day

The first session, which convened at two o'clock today, drew an attendance of about 400 equipment manufacturers, service men, engineers and executives. In the absence of Alvan Macauley, W. M. Warner of the Cadillac Motor Car Co., presided. H. R. Cobleigh, service manager of the N. A. C. C., presented the paper prepared by Howard A. Coffin of the Cadillac Motor Car Co., on the subject of the personal equation in service profits. A budgetary system for planning the conduct of a service station in a way to insure profits and attract customers was presented by J. E. Mills, service manager of the Packard Detroit

Engine reconditioning, grinding, honing and boring were discussed by Robert C. McWane of the National Motor Regrinders and Rebuilders Association and the discussion was lead by L. A. Danse, metallurgist for the Cadillac Motor Car Co., who described some of the problems of engine finishing from the manufacturers' viewpoint as related to the equipment and methods of the rebuilder.

The show is to be open daily for the balance of the week while the sessions will be concluded Friday. This convention is featured by a meeting which is to be held between the car and parts manufacturers and the jobbers. Commissioner Webster of the A. E. A. will preside at this meeting which is scheduled for Thursday morning.

Another conference on the subject of training mechanics is scheduled for Friday morning and the report on the proposed plan for better cooperation between schools and the industry will be discussed at that time. The program for the balance of the meeting follows the previous announcements although Don Hastings of Williams & Hastings of Detroit, has been chosen to present the paper on "My Methods of Selling Service," which is scheduled for Thursday.

Start Investigation of Tetraethyl Lead

WASHINGTON, May 20—More than 100 experts representing the major branches of science and representatives of the ethyl gas industry sought to determine today at the investigation called by Surgeon General Hugh S. Cumming of the Public Health Service, whether or not Tetraethyl lead is dangerous to human life.

Representatives of the industry and experimenters insisted that, while 11 had died and 149 had suffered serious illness in the manufacture of the lead, the processes were now so well safe guarded that the hazard had been diminished to a very small one.

Probe Air Pollution

The main topic of debate at the hearing, was whether, when one part of the lead compound was added to 1300 parts of gasoline, the mixture is a menace to those who handle it and whether its general use would pollute the air with powdered lead to such an extent as to cause poisoning to those who breathe it. Representatives of the Ethyl Gasoline Corp., testified that 300,000,000 gallons of their product had been distributed in 28 states and that an exhaustive inquiry had failed to reveal a single person who suffered from lead poisoning as the result of this contact.

Dr. Robert A. Kehoe of the University of Cincinnati said that 18 out of every hundred workers engaged in the distribution of tetraethyl lead were found

(Continued on page 919)

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Steel Wheel Meeting Will Decide Course

Directors of Company Holding Invention Rights to Plan **Policies**

DETROIT, May 19-The next step following the granting of letters patent to Alden L. Putnam for balloon tire invention will be a meeting of the directors of the Steel Wheel Corp. of Lansing, to whom the patent is assigned. The inventor, Mr. Alden, is one of the four holders in this corporation. He is expected to arrive in Chicago this week from the Pacific Coast, and the meeting will in all probability be held in that city next week.

The other members of the Steel Wheel Corp. are Motor Wheel Corp. of Lansing, American Steel Foundries, Chicago, and the Midland Steel Corp. of Cleveland. The Steel Wheel Corp. was formed in April, 1923, for the promotion and development of steel wheel manufacture, all patents on steel wheels, rims and tires being assigned to it. Through purchase of the stock of George Forsythe, who was an original member of the Steel Wheel Corp., Motor Wheel Corp. holds the controlling interest.

Will Support Claims

At the Motor Wheel offices in Lansing it was declared that no action on the granting of the balloon tire patent would be taken prior to the meeting of the Steel Wheel Corp. directors. Following that an official statement would be issued as to any action it intends to take under the patents. Up to the present time no line of action has been considered. There is no intention on the part of the corporation to be arbitrary in the matter, it was stated, but it is amply prepared to support its claims.

When application for the patent was made, Aug. 13, 1920, Mr. Putnam was chief engineer of the Detroit Pressed Steel Co., which was named as assignee. The physical assets and an interest in the patent rights of Detroit Pressed Steel were bought by Motor Wheel Corp. in January, 1923.

Inventor on Coast

News of the granting of the patent was wired to Mr. Putnam in California by Motor Wheel. He was about concluding a three months' vacation period and made plans to leave for Chicago at once. Early in the year he underwent an operation for throat infection and was in California recuperating. Only his illness led to his taking the vacation, the first one he would agree to in the last ten years, his friends declare.

All of his spare time since the date of the original application has been spent in urging not only the granting of the patent but in seeking the adoption of tires of this type for general use on automobiles.

(Continued on page 923)

SAM MILES, N. A. C. C. SHOW MANAGER, ILL

NEW YORK, May 20-Sam A. Miles, veteran show manager of the National Automobile Chamber of Commerce, is seriously ill at the Harbor Sanitarium, New York. Following an abdominal operation on May 14 his condition was critical, but the latest reports are more encouraging. He has shown considerable improvement.

Mr. Miles was not feeling well when he left for England in April, and he was advised by London physicians to return home at once for an operation. Cutting his trip short, he arrived in New York May 8.

Balloon Tire Patent Faces Legal Battle

NEW YORK, May 20-Tire manufacturers have received calmly the news that Alden L. Putnam, automotive engineer employed by the Motor Wheel Corp., has been granted a patent on balloon The conviction is expressed on all sides that the patent will not withstand the legal barrage to which it is soon to be subjected.

On the other hand, it is certain that Mr. Alden, the Motor Wheel Corp., and the Midland Steel Products Co., which have an equal interest in the patent, will make every effort to secure its vindication in the courts and obtain royalties on all balloon tires manufactured in this country.

Course Not Determined

When the expected court actions will start has not yet been determined. Attorneys representing the tire companies have been busy obtaining copies of the patent and going over it carefully. It is probable, according to spokesmen of the Rubber Association of America, that concerted action will be taken by the manufacturers, since all are affected to some extent, but whether this will be done through the association, or just what form the fight will take, has not been decided.

The basis for opposition to the patent, it is indicated, will be that no "novelty and invention" is involved in the Alden idea. B. G. Work and J. A. Swinehart are among the manufacturers who have expressed the view that the balloon tire does not differ essentially from the first automobile tires that were manufactured here and in England.

The patent was applied for in August, 1920, and was issued recently only after a prolonged struggle and over the opposition of the tire manufacturers. Mr. Alden and the two companies interested in the patent will profit to the extent of many millions if they are upheld in the

Action Expected on Balloon Tire Patent

Three Claims Granted Inventor -Decision Will Be Made Public Later

WASHINGTON, May 21-Granting of a patent on balloon tires to Alden L. Putnam of the research department of the Motor Wheel Corp., Lansing, Mich., establishes the fact that Commissioner of Patents Thomas E. Robertson is convinced that Mr. Putnam has submitted to the automotive world a new tire producing a new result.

Issuance of the patent, which has caused such a furore in the industry, is considered so far reaching that the decision of Commissioner Robertson granting it will be made public here at a later

Would Collect Millions

The patent rights, it is said, will mean that the holder of the patent may now collect from all those manufacturers who have been making balloon tires during the five years since first he applied for the patent. That the collections will run into the millions, if the patent is upheld, there appears to be little reason to doubt.

Granting of the patent to Mr. Putnam is evidence that, so far as the knowledge of the Patent Office goes, he is the first and original applicant for a patent on a low-pressure tire of increased cross-sectional area and with thinner walls than the ordinary tire.

Suits Expected to Follow

The three claims explaining the patent

A pneumatic tire of normally circular cross-section and designed to carry a predetermined normal load at a substantially reduced inflation pressure, modified from standard practice for the same load by a substantial increase in cross-sectional area and a substantial decrease in ratio of wall thickness to cross-sectional diameter.

The second is similar, except that it reads "modified from standard practice for the same load by an increase of at least 50 per cent in cross-sectional area."

The third reads:

A pneumatic tired vehicle wheel designed to carry a predetermined load at substantially below standard inflation pressure and with a materially decreased total weight of tire and wheel body, modified from standard practice by a substantial increase in crosssection diameter of the tire with a decrease in ratio of wheel body to tire in both radial dimension and weight.

Patent officials frankly admit that now the patent has been issued, infringement suits are expected to follow. According to statements filed by Putnam, he was unsuccessful in his efforts to get the industry to accept his idea, yet subsequently it was extensively adopted almost overnight.

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J. Dallas Dort, 64, Dies on Golf Links

Former Head of Dort Motor Co. Was Well Loved in Car Industry

DETROIT, May 19—News of the death of J. Dallas Dort, president of the former Dort Motor Car Co., has created a widespread feeling of sorrow throughout the industry. Finishing a round of golf at the Flint Country Club Sunday, Mr. Dort staggered and fell while talking to club companions. When examined at the clubhouse a few minutes later he was dead. He was 64 years old.

Throughout the industry there was probably no one executive who held quite the place in the regard of associates as did Mr. Dort. His company within the past year had paid its debts and gone out of business. Not more than two months ago he said, in a personal talk at the time of his disposal of the old company:

Was in Best of Health

"I'm only a young fellow yet there are lots of things for me to do, but just what I will take up I cannot say now. First of all I intend to conclude the liquidation of this company, and when that is through I will look around. Possibly I will just take a general interest in the companies in which I have holdings. More likely, however, I will get into business in some active way." Shortly after this talk Mr. Dort went to Pinehurst, as was his usual custom in the early months of the year. He returned from Pinehurst about April 1 and has been interesting himself in the affairs of his company and in civic and social activities in Flint. Apparently he was as well as he had been at any time in years.

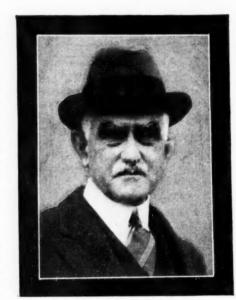
Death was due to a heart seizure. Born in Inkster, Mich., in 1860, Mr. Dort came to Flint when he was 21. In the years that intervened he became Flint's leading citizen through his activities in the carriage and automobile building industries and through the inspiring force of his character.

Associated With Durant

Entering the hardware field at first, he acquired sales ability and general business knowledge. With W. C. Durant he entered the carriage building field in the late eighties, the Durant-Dort Carriage Co. achieving a national reputation and wide success. The partnership was dissolved in 1905, when Mr. Durant formed the Buick Motor Co. Continuing in the carriage and wagon field until about 1910, Mr. Dort made a comparatively late start in the automotive industry, but achieved a success fully as great as in the earlier carriage venture. Through the years up to 1920 and '21 the Dort company held a place with the leaders, building 25,000 cars yearly as late as the early twenties.

The Dort Motor Car Co., in its prime, had the extensive Flint manufacturing plants and large body factories at Kalamazoo. Large new car manufacturing buildings were built at Flint in the early twenties, but, depression intervening in the industry, these were never occupied. The Kalamazoo body plants were later discontinued and sold, and activity concentrated in the Flint plants.

In the increasing competition of the industry Mr. Dort sought for a younger



J. Dallas Dort

man to take his place at the head of the company, and not finding the kind of man he desired, he determined to go out of business. It is a byword in the industry that the Durant-Dort Carriage Co. and the early Dort Motor Car Co. was the development ground for many of the present leaders. Men like C. W. Nash and A. B. C. Hardy, just to mention two, though there were dozens of others, came to the Dort companies, worked under Mr. Dort's guidance for a while, then left to take the helm of other companies. To no one was their (Continued on page 917)

ORGANIZE CLUTCH FIRM

INDIANAPOLIS, May 20—The American Spring Clutch Co. is the name of a new manufacturing company organized here recently to manufacture and develop a new spring clutch for electric starters. The concern is independent of the Central Gear Manufacturing Co., with which some of its officers are identified, and with which for the present it occupies joint quarters.

The officers of the Spring Clutch concern are Albert Lieber, president; Frank Gritt, vice-president, and W. Carlton Starkey, secretary-treasurer. Mr. Starkley is also secetary-treasurer of the Gear company, with Charles Drexler president and Charles Retherford vice-president. These three are the active technical heads of the manufacturing and production of the two companies.

April Gain Reported by Parts Producers

Association States Prospects for May Excellent—Jobber Business Good

NEW YORK, May 20—The automotive parts and accessory business made a gain in April over March of more than 25 per cent and has excellent prospects for the remainder of the first half of the year, according to the Motor and Accessory Manufacturers Association. The association reports index figures of sales since the first of the year as follows: January, 100; February, 100.7; March, 132; April, 168.

Keeping step with the record car and truck production in April and anticipating still another record in May, sales of units and parts to manufacturers by M. & A. M. A. members in April were 83 per cent over January as compared with 38 per cent in March and 1 per cent in February.

In sales to the trade a representative group of replacement parts manufacturers reported April business 7 per cent over January as compared with March business 5 per cent below January and April business 14 per cent under January. Sales of accessories in April were 93 per cent over January as compared with 59 per cent in March and 21 per cent in February. In the maintenance equipment division of the industry, where purchases usually run heaviest just ahead of the spring repair season, April sales were 49 per cent over January, a decline from the March record of 62 per cent over January, while February business was 22 per cent over

The M. & A. M. A. figures represent reports of shipments to customers by a large group of representative makers. The figures in full detail have been reported to the membership in the second monthly issue of the M. & A. M. A. Business Bulletin, a new publication which made its appearance late in April.

In addition to manufacturers' figures, the M. & A. M. A. reports business of automotive equipment jobbers throughout the United States and Canada as excellent, April running well ahead of March and substantially ahead of last year. Credit conditions among the jobbers' customers also are reported as improved over last year in most territories.

Manufacturers' reports to the M. & A. M. A. showed the largest sales by any company for April slightly over two million dollars, while two others ran close to the two million mark and several were in excess of a million.

MARMON DRIVEAWAYS

INDIANAPOLIS, April 28—Nordyke & Marmon Co. has found it expedient in speeding up deliveries to important distributing points to supplement rail shipments with large driveaways.

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Crude Rubber Prices May Cut Tire Output

Production of Smaller Firms Reduced—Demand Shows No Signs of Let-Up

AKRON, May 20—While the demand for tires from automobile manufacturers and dealers has shown no signs of slackening, following the increase in tire prices May 1, indications are that production will be curtailed considerably as a result of the steadily rising crude rubber market. This is the most serious problem facing the tire industry today.

Many of the smaller companies, which did not anticipate the shortage of rubber by making future commitments at the beginning of the year, have been hard hit by the sudden bulge in the market this month. They have been forced to cut their normal production in half, and the factories are operating on schedules of only three days a week.

Profits Greatly Reduced

If the market continues at present high levels of above 60 cents a pound, it is freely predicted that those concerns with small capital may be forced out of business. With tires selling less than 10 per cent above prices in effect when rubber was around the 20 cents a pound level, profits are going glimmering. In fact, a much greater advance in tires would have undoubtedly occurred if all manufacturers had been required to buy spot rubber.

The large manufacturers, such as United States, Goodyear, Goodrich, Firestone, Fisk, Ajax, Kelly-Springfield and Miller, have contracted for most of their normal requirements for the next three or four months, as far as can be learned here. They have been forced to buy some rubber, however, on account of the heavier demand for tires.

Price Advance Imminent

With prospects of a shortage of tires looming up, coupled with the trebling in cost of crude rubber, another advance in price is regarded in trade circles here as almost inevitable. There has been talk of an immediate increase being put into effect, but it is not believed the big manufacturers wish to disturb the market with another revision of schedules before June 1.

While no official statements have been made of more price changes, inquiry reveals that there has been a general stiffening in the tire market in the past few days. Even after the new schedules became effective May 1, some manufacturers, in order to get the business, are known to have shaded prices to certain favored dealers. Such practices, while frowned upon by most companies, have frequently been reported, owing to the keen competition in the tire industry. The crude rubber situation, however, has caused the tire companies to adhere

AUTOMOBILES INVADE INVIOLATE TERRITORY

WASHINGTON, May 20—The last stronghold in the world has fallen before the automobile. The Isles of Bermuda are to have two trucks for government use, according to advices just received here by the Automotive Division of the United States Department of Commerce

Bermuda has been the lone spot on the earth's surface where the use of motor vehicles has been prohibited by law. It was the Board of Works of the Bermuda government which obtained authority, after a prolonged fight in the legislative assembly, to buy two motor trucks of $2\frac{1}{2}$ to 3 tons capacity, for the purpose of transporting crushed stone from one part of the island to another.

The reason for the unique antiautomobile law of Bermuda has been the character of the islands as a health resort.

more strictly to the higher prices put into effect, and to prepare for further upward revisions.

Among reasons given for a possible shortage of tires, it is pointed out that stocks in dealers' hands are comparatively low and shipments from the factories have been heavy, keeping inventories of finished products low. On the other hand, the demand from dealers and automobile manufacturers has grown. Executives of three companies said they were having difficulty in turning out sufficient tires to supply current needs of customers. The president of one company stated sufficient orders have been received to keep the plant running at capacity until fall.

Ford Output Reduced in Charlotte Plant

CHARLOTTE, N. C., May 19.—The Ford Motor Co.'s branch plant here reduced its daily output from 300 to 253 cars, to meet a condition in the trade which was declared temporary and due to the letup in demand from the farmers, who are now busily engaged in planting and cultivating their crops. Company officials here said the present rate of production is equal to an annual output of 66,000 Ford cars, valued at about \$33,000,000.

Trade conditions throughout the Carolinas generally are sound, according to Ford plant executives. Agricultural conditions and prospects "are unusually good," it was explained, and a tremendous demand for Ford's products is expected to be the result, becoming greatest immediately after cultivation of the crops is completed, which will be about two months.

British Duties Hit French Car Output

Makers Say Production Will Decline—Home Market in Disturbed Condition

PARIS, May 11 (by mail)-That a slackening off in production is bound to follow as the result of the re-imposition by the British government of a 33 1/3 per cent duty on automobiles, is the opinion of the leading manufacturers of France. The move of the British government could not have come at a worse time so far as the French manufacturer is concerned, for the home market has been in a very disturbed condition for the last six months. Threats of a levy on capital, increased taxation, political unrest, flling currency, communist activity, all have tended to restrict buying and have made the French automobile factories particularly dependent on foreign trade.

Last year France exported 43,934 passenger cars and 4,193 trucks, the best single customer being Belgium, with England second on the list. Since then Belgium has adopted new import duties, and England, which last year purchased 7707 passenger cars, now heads the list. The English decision to apply an import duty of 33 1/3 per cent to all foreign automobiles doubtless will eat into this foreign business.

J. Dallas Dort Dies

(Continued from page 916)

success more gratifying than to Mr. Dort.

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There is scarcely any reason to believe that the liquidation of the Dort company had anything to do with the unexpected death of its founder. Those who knew Mr. Dort knew him to be too much of a philosopher to be deeply wounded by a purely business circumstance; certainly from his own lips there was no other comment than that it was 'part of the game." He would have liked the business to go on for the sake of the city of Flint and for the boys that worked with him, but for himself it was only an incident in a busy life. Mr. Dort was twice married. He leaves a widow, five children, Ralph B. Dort and Mrs. Gordon Fontelroy, by his first marriage, and Dallas Webb Dort, Marjory Dort and David Dort by his second mar-

NEW TAP AND DIE FIRM

GREENFIELD, MASS., May 20—A new company has been formed here for the manufacture of taps and dies, called the Wells Tap & Die Co. F. E. Wells, formerly president of the Greenfield Tap & Die Corp., is president of the new concern, and his brother, F. O. Wells, formerly head of the American Tap & Die Co., is vice-president.

Reo Announces Coupe Listing at \$1,645

Model "G" Is Mounted on T-6 Chassis—Similar to Lines of New Sedan

DETROIT, May 21—Following the recent introduction of a sedan listing at \$1,645 a two-passenger coupe having similar characteristics and the same price as the new sedan model has just been announced by the Reo Motor Car Co.

Mounted on the standard T6 chassis, the "G" coupe as it is known, has a straight front seat which is dimensioned to carry an additional passenger when occasion demands. Behind the removable back of the seat permitting access to the rear compartment is a narrow opening having a hinged cover for carrying parcels, while the larger luggage is accommodated in an exceptionally roomy watertight rear compartment. carrying golf clubs, fishing tackle and other cumbersome articles, a door fitted with a tumbler lock identical to that of the rear compartment has been placed on the right-hand side of the body behind the seat.

Interior in Brown

Worsted type of brown shade cloth is used to upholster the cushions, top and body panels, while under the seat, cowl and along the door bottoms brown leather fabric is used. For an additional charge of \$35 the entire interior may be upholstered in two-tone Spanish brown leather.

Provision has been made to conduct water due to condensation to the outside of the body, which, in conjunction with special weather seals on the one piece adjustable windshield insures the interior of the body being dry under all conditions.

Instrument Dials Clustered

Crank type of regulators lift the windows which are set in felt lined channels to prevent rattles. Both doors have double catches, while spring wire checks which disappear into the upright pillars limit their outward travel. The instrument board which carries all dials grouped in a cluster is finished in satin silver, the cowl lines, moldings and window sills are of American walnut finish.

Consisting of a series of heavily padded slats and covered with double texture leather cloth, the sound absorbing top is extended over the windshield to form a visor. Aluminum moldings prevent water from the roof dripping over the doors.

Equipment included in the list price consists of adjustable rearview mirror, mechanical windshield wiper, dome light, cigar lighter, rear window shade, aluminum kick plate, cowl lights matching head lights, and locks to all doors and outside compartments.

Business in Brief

Written exclusively for AUTOMOTIVE INDUSTRIES by the Guaranty Trust Co., second largest bank in America.

NEW YORK, May 20—Cold weather retarded retail trade in many districts last week, while accompanying rains were beneficial to crops. Wholesale markets continued very conservative. Industrial activity in general was slightly lower, with the building and automotive industries as outstanding exceptions. Commodity prices continued the upward reaction begun a fortnight ago.

The sharp advance in prices of crude rubber has continued. Some grades were quoted on Monday of this week at 70 cents a pound, as compared with 61 cents a week ago and 17 cents a year ago.

Another large increase in crude oil production in the week ended May 9 carried the daily average up to 2,238,-350 barrels, as against 2,182,850 barrels in the preceding week and 1,959,250 a year earlier. The highest average ever reached was 2,280,700 barrels, in September, 1923.

Building expenditures authorized in April in 170 cities, according to Bradstreet's, amounted to \$406,158,937, comparing with \$350,411,078 in March and \$297,237,088 in April last year.

Consumption of lint cotton by domestic mills last month reached a total of 597,104 bales, as compared with 582,674 bales in March and 478,583 in April, 1924. Last month's figure was, with the exception of three months in 1923, the largest since 1917.

Preliminary figures of foreign trade last month show exports of \$400,000,-000 and imports of \$349,000,000, comparing with exports of \$453,000,000 and imports of \$385,000,000 in March, and exports of \$324,000,000 and imports of \$324,000,000 and imports of \$12.734,062, the smallest total since last November.

Bank debits to individual accounts reported by the Federal Reserve Board for the week ended May 13 were 18.8 per cent below the record total of the preceding week, but 16.4 per cent above the corresponding total a year ago.

Fisher's index of wholesale commodity prices scored a second sharp advance last week, standing at 158.0, as against 156.2 a week earlier and 154.1 two weeks earlier.

Total resources of all national banks on April 6, as reported to the Controller of the Currency, were \$23,832,-463,000, or \$1,769,575,000 more than on March 31, 1924. Loans and discounts increased \$516,549,000, holdings of Government securities \$119,872.000, and other bonds and securities \$627,618,-000, during the year.

Discounts by Federal Reserve banks declined \$71,900,000 during the week ended May 13, with a decrease of \$47,000,000 in bills secured by Government obligations and a loss of \$24,900,000 in "other bills discounted." Bills bought in the open market increased \$4,500,000 and holdings of Government securities \$4,300,000, while the circulation of Federal Reserve notes declined \$6,800,000 and total deposits \$23,300,000, Total reserves increased \$7,000,000, and the reserve ratio rose from 76.3 to 77.2 per cent.

Loans of reporting member banks declined \$47,000,000 during the week ending May 6, with \$37,000,000 of the aggregate decline in commercial loans.

Body Builders Will Convene in Detroit

All Phases of Industry Listed for Discussion at June Gathering

NEW YORK, May 21—All phases of the body building industry will be covered in topics prepared for discussion at the fifth annual convention of the Automobile Body Builders Association, to be held June 2-4 at the Hotel Statler, Detroit. An exhibition of material and parts will take up the entire space of the grand ballroom of the hotel.

Among the addresses scheduled for the opening session is a paper on "Present and Future Automobile Body Designs," by Harry M. Jewett, president of the Paige-Detroit Motor Car Co. On June 3 the morning sessions will be devoted to group meetings of the body builders, hardware, bus, and paint and varnish sections. Among the topics scheduled are "Trim and Body Styles," "Style vs. Comfort in Present Day Bodies," "Fabric Bodies" and "Steel Bodies."

The Wednesday afternoon session will be an open meeting with body finishes as the principal subject. One of the important papers will be "Progress in Lacquer Work," by L. Clayton Hill. "High-gloss Lacquers" will be discussed by E. G. Richardson, "Undercoats" by J. Alexander Wilson, "Spraying of Lacquers" by G. E. Overmyer. Other phases of the subject which will be considered are: Preparation of metal work, rubbing and polishing compounds and long-oil enamel finishes for bus bodies. At this session "Present Status of Standardization" will be discussed by George J. Mercer, and it is expected that the body builders will be asked to indicate what parts should be standardized next.

At the annual dinner, George M. Williams, president of the Nordyke & Marmon Co. will speak. On June 4 the annual meeting and election of officers will take place.

Reeves Compares Car Taxes with Highways

NEW YORK, May 20—Taxes paid by the automobile are greater than the entire cost of construction and maintenance of all the Federal and State highways, said Alfred Reeves, general manager of the National Automobile Chamber of Commerce, before the Portland Cement Association in an address at the Hotel Biltmore, New York.

"Government figures now available for 1924," said Mr. Reeves, "give \$550,000.000 as the total for motor transportation taxes paid during the year. The cost of the Federal and State highway programs during the same time was \$512,000,000.

"These roads constitute the main highways of the nation and serve about 80 per cent of the total vehicular mile

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Britain May Advance McKenna Duties Date

"Dumping" So Far, However, Mainly of Foreign Makes-Prices May Rise

LONDON, May 7 (By Mail)-It is probable that the opinion previously expressed that British car prices will increase as a result of reestablished protection may not materialize. In more than one quarter it is declared that during the next year or so surprising developments will take place in the home automotive industry, and lowered prices will figure prominently in this policy. Several manufacturers have already declared that they will not take advantage of the new position to put up prices, although general opinion is to the con-

During the debate on the budget proposals in the House it was announced that the average prices of cars in this market fell only 10 per cent as a result of the abolition of the duties last year.

Increase Comparatively Small

The abolition of the duties did not have such a great effect on imports as was expected. The average increase in value of imports during the open door period was £183,708, 15s. per month, and, when the growth of motoring is taken into account, the increase is comparatively small.

It is conjectural whether foreign importers will enjoy the two months' period of grace, after all. A strong press campaign has been waged against suspending reimposition of the duties until July One journal, showing pictures of stacks of crated automobiles at a certain distributing center, went so far as to declare that within the short period of ten days enough foreign cars had been imported to cover sales for the rest of the year.

Watch Situation Closely

This, of course, is arrant nonsense, but it had the effect of making Winston Churchill announce in Parliament that if necessary the date of the 33 1/3 per cent import levy would be brought forward. The customs officials have been instructed to watch the dumping of automobiles, and if it is shown that the revenue is likely to suffer to any extent the open door will at once be slammed to.

Such action will hit American manufacturers very hard. The proximity of the Continent means that only extra consignments of French, Belgian and Italian cars have so far arrived. It is possible, therefore, that the closure will be put on this market when only Continental cars will have been dumped and large consignments of American automobiles are still on the water. This matter is further complicated by the fact that owing to a bad home market French makers have large stocks on hand, whereas, as is well known, American manufacturers have adopted the policy of allowing sales to govern production schedules.

General disappointment is expressed at the failure on the part of the government to substitute the present system of taxation of £1 per hp. for a gasoline tax. Agitation for a revised form of taxation is bound to revivified, and coupled with this will come the claim for a rebate on

It is generally anticipated that the remission of 6d. off the income tax will mean that the number of automobile prospects in the country will be in-

Strong efforts are being made to get commercial vehicles included in the proposals. It is pointed out that most of the local manufacturers are in a bad way, while the exemption of trucks and buses is, from a revenue point of view, difficult to administer. Through simplifying the revenue machinery the Exchequer would doubly benefit.

New Speedster Model Added by Kissel

HARTFORD, WIS., May 19-Kissel has added a four-passenger speedster model to its six and eight cylinder lines. The new models are identical in appearance with the two-passenger speedsters except that the cover of the rear deck is wider and may be swung back to provide seats for two additional passengers. There are three steps to this rear seat: first, on the hanger back of the fender; second, on the frame; third, on top of the right rear fender. Both models are furnished either with standard or de luxe accessory equipment. The enclosed speedster also may be had, if desired, with the extra seat in the rear deck.

A new six-cylinder special express chassis having a wheelbase of 150 in. and equipped with hydraulic four-wheel brakes and 33 x 6 in. balloon tires has also been brought out by the Kissel company. The first body to be built on in the Kissel shops for this chassis is a limousine hearse.

Tetraethyl Lead Survey

(Continued from page 914)

to have suspicious symptoms, but that increased precautions were cutting down this percentage.

The investigation will continue under the direction of Dr. Cumming and a committee of seven to be selected by him.

The Bureau of Mines, Army Chemical Warfare Service, Universities of Cincinnati, Ohio State, Harvard, Yale, Columbia, Johns Hopkins, Wisconsin, the American Federation of Labor, State and Provincial health departments, the American Public Health Association, American Medical Association, National Research Council and the American Automobile Association are represented at the hearing.

FINANCIAL NOTES

Stewart-Warner Speedometer Corp., for the quarter ended March 31, reports net income of \$1,303,972, against \$1,496,700 for the corresponding period of 1924, equal respectively to \$2.17 and \$3.15 per share earned on the capital stock outstanding, which amounted to 599,990 shares this year, 447,980 shares last year. Balance sheet as of March 31, 1925, shows current assets \$12,121,049 and current liabilities \$1,975,126.

Black & Decker Manufacturing Co., of Towson, Md., manufacturer of portable electric tools, has just redeemed an additional \$80,000 of 8% bonds, leaving a total outstanding of only \$130,000, against the original issue of \$350,000. The company reports a substantial increase in business during 1924 over the preceding year and up to the present time 1925 is running well ahead of

Noyes Buick Co., New England distributor of Buick cars, has announced an additional 5,000 shares of 8% preferred stock, \$100 par. To employees 3,500 shares would be sold at par and the remainder issued as a 10% stock dividend on the common. The new issue would make the capital \$500,000 preferred and \$1,500,000 common stock (\$100

C. L. Best Tractor Co. has called for payment June 1, 1925, at the Bank of California, San Francisco, the entire issue of its 6½% notes, due June 1, 1926-28; notes due December, 1926, at 100½ and interest; due 1927 at 101 and interest; due 1928 at 1011/2 and interest.

Gabriel Snubber Co., directors have declared an initial quarterly dividend of 62½c a share on the new no par value common stock, placing the issue on a \$2.50 annual dividend basis. The dividend is payable July 1 to stockholders of record June 15.

Marland-Rockwell Corp. and subsidiaries report for the quarter ended March 31 net profit \$250,015, after expenses, depreciation and other charges, equal after deferred dividend 90 cents a share earned on 222,805 shares of no par common stock.

Schacht Motor Truck Co., balance sheet, Dec. 31, 1924, showed current assets of \$750,710 and current liabilities of \$178,389. Total assets on that date amounted to \$911,351.

Wants Commission to Regulate Bus Lines

WASHINGTON, May 21-Decision to draft a bill for presentation to Congress vesting the Interstate Commerce Commission with power to grant or refuse certificates of public convenience and necessity for motor bus companies engaged in interstate operation was reached here this week at a meeting of the Organization Committee of the National Conference of Motor Bus Opera-

A resolution previously adopted at Cleveland was reaffirmed providing for a national conference of Motor Bus Operators and various State Motor Bus Organizations to be held at Chicago on June 17 and 18 for the purpose of perfecting a National Organization of Bus Operators.

Standards Adopted by Battery Makers

Approve 90-Day Warranty and Ratings at Convention in Chicago

CHICAGO, May 19—A standard ninety-day warranty on storage batteries and a standard rating for radio A batteries were adopted at the two-day convention of the National Battery Manufacturers' Association.

At a previous meeting a standard rating for radio A batteries was adopted which was based on a continuous discharge of 1 ampere, starting with a gravity of 1285 and a temperature of 85 deg. Fahr., continuing the discharge until a voltage of 1.75 per cell is reached. Due, however, to the fact that many batteries on the market are rated on a basis of intermittent discharge, as would be actually the case in service, it was decided to adopt a second rating.

This rating provides for a discharge of ¼ ampere per positive plate, the discharge to be for 4 hours, followed by a rest period of 20 hours, then discharge for 4 more hours, and so on until the voltage per cell has fallen to 1.75. It was recommended that these ratings be placed on the name plates of all radio A batteries.

Warranty Is Goal

The idea of a standard warranty includes the prospect of eventually having all batteries sold on the same basis on which cars are sold, where the manufacturer sells his merchandise on its reputation and makes good on defects in material and workmanship only. The warranty is as follows:

We guarantee each new battery manufactured by us to be free from defects in material or workmanship under normal use and service; our obligation under the guarantee being limited to making good at our factory any part or parts thereof which shall, within ninety (90) days after delivery of such battery to the user, be returned to us with transportation prepaid, and which, upon examination, shall disclose to our satisfaction to have been defective.

This guarantee shall not apply to any battery which shall have been repaired or opened outside of our factory or by our duly authorized service station, nor which has been subject to misuse, negligence or accident.

The above warranty, while adopted by the association, does not affect any sales policy now being used by members of the association, although it does outline a goal toward which it seemed desirable to work. The association also took up the matter of uniform methods of cost accounting with the idea of making it possible for each member using such a system to actually know when his price was approaching the danger line where sales would mean a loss instead of a profit.

The committee on publicity presented a report on a proposed pamphlet for

AWAIT FORD DECISION ON VESSEL PURCHASE

WASHINGTON, May 21—Until Henry Ford makes a formal offer for the purchase of surplus ships from the government, no further steps will be taken by the Shipping Board to dispose of the 400 vessels which Chairman T. V. O'Connor wants to sell, it was announced here this week.

Pending advices from Mr. Ford, Mr. O'Connor said the board would mark time in its effort to sell the ships, either for scrapping or private operation. In the meantime the chairman is seeking to eliminate the opposition among other members of the board to his plan for placing surplus ships on the open market.

distribution to the radio buying public in which the advantages of wet B batteries were brought out. The committee was authorized to proceed with this work

An advertising appropriation was approved for the purpose of acquainting the trade with the aims of the association and with the progressive practices which it advocates.

O. B. Towne, new commissioner for the Asbestos Brake Lining Association, succeeding A. A. Mowbray, was also appointed commissioner for the battery association.

Advertising Men to Meet in South Bend

NEW YORK, May 20—Advertising managers of members of the National Automobile Chamber of Commerce will meet June 11-12 at the Chamber Lakes Country Club, South Bend, Ind. A similar meeting will be held by the Motor and Accessory Manufacturers Association in South Bend at the same time and the groups will hold a joint session on June 12.

Edward S. Jordan, president of the Jordan Motor Car Co., will preside at the N. A. C. C. meetings and Ezra W. Clark of the Clark Equipment Co. at the M. A. M. A. meetings.

INDIAN ACCEPTANCE CO.

SPRINGFIELD, May 15—The Indian Acceptance Co. has been formed by the Indian Motorcycle Co. here to finance the sale of new and used machines by its dealers. The company had sponsored time sales for some years, but it was not working out satisfactorily. The new company will deal exclusively with Indian dealers. President Frank J. Weschler heads the finance company, with Parmley Hanford secretary-treasurer and William L. Gilbert, a banker, the remaining director.

Industry Runs Third in U. S. 1924 Exports

Shipments of Automobiles and Parts Last Year 25 Per Cent Higher Than 1923

WASHINGTON, May 21—Export of automobiles and parts ranked third among the ten principal commodities in the American export trade of 1924, with a value of \$206,000,000, nearly 25 per cent higher than in 1923, it has just been made public here by the Foreign Commerce Department of the Chamber of Commerce of the United States.

During the year 1924, it is revealed, the United States exported 151,379 passenger cars, 19 per cent more than in 1923 and 485 per cent more than before the war. Exports of motor trucks and buses amounted to 27,351, 10 per cent more than the preceding year and 26.11 per cent greater than before the war.

The total American export trade, which has been steadily increasing since 1921, continued its upward course in 1924 with a gain of 10.2 per cent over the previous year, the Chamber of Commerce analysis discloses. Last year's total exports, amounting to \$4,591,000,000, were even higher than those for 1921, a year in which the post-war values still influenced foreign trade figures. The increase over 1923 was \$423,000,000.

The two leading commodities were raw cotton and wheat. Fourth among the exports were gasoline, naphtha and other light products, the most important of our petroleum exports. During 1924 we exported 1,189,000,000 gallons, valued at \$168,000,000, a 41 per cent gain in quantity and a 22 per cent gain in value over 1923 shipments.

To Plan Shipping Cars Abroad Without Boxing

NEW YORK, May 20—A special committee of export men of the National Automobile Chamber of Commerce is to start meetings this week with local representatives of the United States Shipping Board Fleet Corp. on the matter of shipping cars and trucks to Europe without boxing. Economies in ocean transporation will result if the government shipping agency agrees to the plan, which has already had a successful trial on the Ward Line to Cuba.

On the N. A. C. C. committee are David C. Laing, General Motors; M. C. Reichert, Studebaker, and W. J. McGough, Lincoln, with John V. Lawrence as secretary. Mr. Lawrence is acting for George F. Bauer, foreign trade secretary of the chamber, who is in Europe. The fleet corporation representatives are C. Brookwalter, manager of operations for the New York district, and J. Sinclair, traffic manager of European and West Mediterranean trades.

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Chevrolet Sets New Marks During April

Dealers Sell 53,283 Cars—One Day's Shipment 4,064 Units —Trucks Improve

DETROIT, May 20—Two new records were established by the Chevrolet Motor Co. during April. Retail Chevrolet dealers in the United States broke all previous monthly records by selling during April an aggregate of 53,283 cars. The next largest retail sales month was April, 1923, when 51,394 Chevrolets were sold.

The other new record was made on April 30 when a total of 4064 cars and trucks were shipped from the various Chevrolet factories, the largest number for one day in the history of the company. During April Chevrolet salesmen obtained 50,396 new orders, the remainder of the delivery total for the month being used to take care of a small portion of unfilled orders carried over from March. At the end of April 36,512 unfilled orders still were on hand throughout the United States.

The improved Chevrolet trucks, which have registered a progressive gain since the new line was announced early this year, reached during April a production of 3952, an increase of nearly 40 per cent over the 2831 trucks built during the corresponding month of 1924.

Truck Output Increases

May production of trucks is exceeding that of April.

Of the 3952 April truck production 1440 were the commercial chassis which follows closely the design of the passenger car chassis. April, 1924, production of this type was 1011. The remaining 2512 trucks built last month were the utility express chassis of one-ton capacity which carries the same power plant and controls as the commercial chassis but has a special heavy duty rear axle, large gears and bearings and a 5-in. channel frame. The April, 1924, production of the utility express chassis was 1820.

The steady increase in production of the two chassis this year is shown by the following figures: January, 407; February, 1737; March, 2854, and April, 3952. The comparatively low January total was due to the fact that the commercial chassis did not get into production until February, only one truck of that type having been made during January.

TIRES CUT IN CANADA

TORONTO, ONT., May 18—Due, it is stated, to the keenness of competition among the different firms manufacturing auto tires in Canada, prices of auto tires have been reduced in the local market. It is stated that some manufacturers have cut in under the established prices of tires to secure their share of the busi-

DECLARE HENRY FORD IS "BECOMING BANKER"

NEW YORK, May 20—In the organization of the Guardian Detroit Co., with offices at 120 Broadway, this city, Wall Street sees Henry Ford as "going in the banking business," and discussion persists despite the denials from Detroit. The Guardian Detroit Co. is a subsidiary of the Guardian Trust Co., of Detroit, of which Edsel Ford is a director. Among the incorporators of the New York company appears Ernest Kanzler, vice-president of the Ford Motor Co., and brother-in-law of Edsel Ford.

The announced purpose of the organization of the Guardian Detroit Co. is to market here the securities floated by the Trust company.

ness and that other manufacturers have been forced to meet this reduction.

Costs of raw materials in primary sources are still firm, and from present costs it is stated that a reduction is not justified. On high pressure and balloon type tires the reduction ranges from 10 per cent to 15 per cent.

Bankers Interested in Finance Firms

LOUISVILLE, May 18—"The growing number of finance companies in this country, due largely to the development of the automobile industry, so far has not resulted in harm, but the nation's bankers are interested in the problem and are studying its tendencies," stated Oscar Wells, vice-president of the American Bankers Association, addressing the convention of the Association of Reserve City Bankers which met in Louisville recently.

Mr. Wells, who is president of the First National Bank of Birmingham, said that the bankers and the finance companies were working in close harmony and were in agreement on the fundamentals of the business. He said, in part:

Some time ago at a meeting of the bankers and finance company representatives an attempt was made to standardize the credit given by finance companies. The plan of making the down payment in all installment purchases 33½ per cent and the payments run only for twelve months from the date of the down payment was introduced, but was not adopted because of local conditions in communities and peculiarities in certain

However, I believe that some sort of standardization will be reached eventually. Reports of enormous profits led to the rapid increase in the number of finance companies in the last few years. A large number of smaller organizations began operations, and this is one of the tendencies in which the bankers are vitally interested.

The banks must have confidence in the companies and they, in turn, must be able to prove their capacity for credit.

Ford Purchase Plan Tried in Pittsburgh

Dealers Said to Favor System of Finance Company—Buyer Must Be Good

PITTSBURGH, May 18.—The first week of the new Ford purchase plan in Pittsburgh, by which a touring car or runabout may be secured on a down payment of \$12.60 with payments of \$5 a week, and other models in proportion, has been productive of a number of inquiries but sales have been few due to the limited time the plan has been in operation. Whether the new method is to be considered a success will not likely be determined for another three weeks.

The Pittsburgh Finance Co. is handling the deals here, but another company is about ready to announce a similar offer, it is understood. The purchase plan is being restricted to the metropolitan area of the city, none of the outlying suburbs being included as yet. These may be taken in within a month.

Dealers are said to be highly in favor of the plan and expect its success. In one respect the plan offers difficulties, for the finance company will not permit a deal on the names of the two endorsers to the note alone. There are three makers, rather than one maker and two indorsers. The stand has been taken that, irrespective of the backing of the two indorsers, the purchaser must be good for the value of the car. It is also pointed out that while at the outset the depreciation on the car is greater than the purchaser's equity, at the end of a year the resale value is two and a half times the unpaid balance.

400 STAR BODIES DAILY

LANSING, May 19—Colin Campbell, vice-president Durant Motors, Inc., states that one of its subsidiaries, the Hayes-Hunt Body Corp., Elizabeth, N. J., is now producing closed bodies for Star cars at the rate of 400 per day. The Durant-Star wholesale organization now includes more than 200 factory representatives operating under 18 wholesale offices in this country, Canada and Mexico. Since Aug. 1 this organization has developed more than 2000 direct factory dealers, and a proportionate number of associate dealers and authorized service stations.

FINISH STUDY COURSE

SPRINGFIELD, May 15—Forty men employed at the Rolls Royce factory have just completed a course of studies planned for them by the Massachusetts Department of Education. Two groups meet each week on alternate evenings for study under the direction of Edward H. Goodrich and Raymond H. Parker of the Springfield Technical High School. The men were awarded certificates this week.

G. M. Sales in April Total 97,359 Cars

Largest Month Except May, 1923 —Impossible to Meet Demand for Chevrolets

NEW YORK, May 18—The sales of General Motors cars by dealers to ultimate consumers in April totaled 97,359 cars and trucks. This is the largest month in the history of the organization with the exception of May, 1923, at which time 105,778 cars were delivered to consumers. A bulletin recently issued points out that the limited production of the new Chevrolet models has made it impossible to meet the current demand.

The April sales by dealers to consumers compare with 89,583 cars and trucks in April, 1924, and 70,594 in March, 1925. The preliminary figures for April, as well as the others, include passenger cars and trucks sold in the United States, Canada and overseas by the Chevrolet, Oldsmobile, Oakland, Buick, Cadillac and GMC truck divisions.

The following tabulation shows sales of General Motors cars by dealers to ultimate users, as well as sales by manufacturing divisions of General Motors to their dealers:

| their dedicin | | 925 | 1924 | | | |
|---------------|--------|---------|------------------|------------------|--|--|
| | Sales | Sales | Sales | Sales | | |
| | to | to | to | to | | |
| | Users | Dealers | Users | Dealers | | |
| January | 25,593 | 30,642 | 33,574 | 61,398 | | |
| February | 39,579 | 49,146 | 50,007 | 78,668 | | |
| March | 70,594 | 75,527 | 57,205 | 75,484 | | |
| April | 97,359 | 85,695 | 89,583 | 58,600 | | |
| May | | | 84,715 65,224 | 45,965 32,984 | | |

Overseas Club Plans Export Meet in June

NEW YORK, May 20 — Under the sponsorship of the Overseas Club (Automotive Boosters International, No. 9), several hundred invitations to automotive exporters are being issued for a meeting and reception to be held here on June 4, at the Hotel Empire, in honor of Percy Owen, chief of the Automotive Division, Bureau of Foreign and Domestic Commerce, of Washington.

Export executives of car, truck, tire and accessory equipment companies are being invited to attend and, in view of the recent rapid increase in overseas sales, a large attendance is anticipated.

Shortly after its foundation, in early 1924, the Overseas Club, which is composed of export managers of accessory and equipment lines, sponsored a similar meeting in cooperation with the foreign trade committees of the National Automobile Chamber of Commerce, the Motor and Accessory Manufacturers Association and the Rubber Association of America. Approximately 100 executives attended that gathering. The forthcoming meeting will be similar, as all persons interested in export activities are being invited.

Several short talks by visitors from abroad are contemplated.

205,580 RETAIL FORD SALES DURING APRIL

DETROIT, May 19—Retail sales of Ford cars and trucks for April totaled 205,580, of which 187,144 were sold in the United States. The April sale in the United States represents an increase of 33,215 over March.

Enrollments under the Ford weekly purchase plan during April were 34,188, an average of about 1300 daily, and an increase over the March enrollments of 7362. This weekly purchase plan is the savings plan under which cars are delivered on accumulation of a one-third down payment on the full purchase price.

Fordson sales during April, domestic and foreign, were 12,231. Domestic sales of Lincoln models in April were 913, an increase of 151 over April, 1924.

Ford Motor Co. of Canada, Ltd., sales, in both the Canadian and export territories, are not included in the above.

Victor Motors Buys East St. Louis Firm

ST. LOUIS, May 18—Victor Motors, Inc., manufacturer of motor trucks and buses, has just completed negotiations for the properties of the East St. Louis Cotton-Seed Oil Co. plant located in East St. Louis, according to Guy Wilson, president of the Victor company.

The amount involved in the purchase of the property and equipment acquired, together with improvements to be installed at once by the Victor company, will represent an investment of approximately \$500,000. The building is a onestory structure, with saw-tooth roof, and is 567 by 105 feet in size, and the property on which it stands, and which was included in the purchase, has an area of approximately ten acres.

Guy Wilson, president of the Victor company, states that the work of installation will start at once. The additional manufacturing facilities provided by this new property will enable the company to immediately enter the manufacture of buses. Its plan of bus manufacture includes three sizes.

Victor Motors, Inc., has been established in St. Louis for two years. V. George Harper, export manager, states that the company is already doing business in five foreign countries, among which are Germany, Greece, New Zealand, two large orders having been received from the latter country during the past few days.

The new building will allow a production of fifty vehicles per day in the earlier stages of operation, but later the number can be greatly increased. It is stated that the new plant will be occupied immediately, and production will be under way in about thirty days.

Seek to Promote Use of Fewer Tire Sizes

Simplified Practice Division Suggests Conference on Standardization

NEW YORK, May 21—A general conference on tire standardization under the auspices of the Division of Simplified Practice, U. S. Department of Commerce, has just been suggested by R. M. Hudson, chief of the division. Having found through replies to a questionnaire that an overwhelming majority of tire, rim, tire carrier, rim tool and other manufacturers are favorable to further standardization, Mr. Hudson has written to motor car manufacturers offering the services of the division in promoting use of fewer tire sizes.

"There's a good chance," says his letter to the car makers, "that our service applied to this problem will help you, the tire maker, and the dealer, and also the car owner to gain some worthwhile economies."

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N. A. C. C. Group Active

While automotive men closely associated with the tire standardization work which already has been under way for several years were loathe to make any statements for publication regarding Mr. Hudson's proposal, there is a feeling in many quarters that a general conference of this kind might serve simply to complicate the orderly processes which already are operating. The N. A. C. C. balloon tire committee, headed by Alvan Macauley, still is an actively functioning body; the tire and rim division of the Society of Automotive Engineers recently has been revived, and the Rubber Association of America is responsible for the balloon tire standards which now are a part of the S. A. E. recommended practice. There is a greater degree of. coordination in the activities of these organizations at present than at any time in the past. All of them recognize the need for further work, but many executives are satisfied with the course of events as they are going now.

Says Development Gradual

One prominent tire man points out that standardization, especially of balloon tire sizes, must be a process of gradual development because of the newness of the product and the necessity for further development.

A recent report of the N. A. C. C. balloon tire committee shows that 15 car manufacturers today are using tire sizes which accord with those set up about a year ago by the Rubber Association and approved by the S. A. E. Twenty-six sizes of balloon tire sizes are being produced

A number of car makers already have evidenced their intention to use standard sizes of tires when models are redesigned in the future.

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Men of the Industry and What They Are Doing

Brandt Now Oakland Official

A. J. Brandt has been appointed works manager of the Oakland Motor Car Co. He has been identified with duPont and General Motors projects for the major part of the past ten years, during the greater part of which he was associated with A. R. Glancy, now president of Oakland. In 1920 he became works manager of Samson Tractor Co. and three years later became manager of the Fisher Body plants at Janesville, Wis., and Lansing.

Church Now Directing Engineer

H. D. Church, formerly chief engineer of the Truck Division of the Packard Motor Car Co. and for the last 18 months assistant chief engineer of the Chevrolet Motor Co., has gone to the White Motor Co. as director of engineering. G. W. Smith, formerly in charge of the experimental and research departments of the White Motor Co., has returned to the company as technical assistant to Vice-President Thomas H. White.

Holler on Chevrolet Staff

William E. Holler, former vice-president and general manager of the Flint Motor Co., has joined the sales department of Chevrolet Motor Co. He will be attached to the main sales offices in Detroit, assuming his new position May 25. Formerly he was general manager of the Imperial Wheel Co., Flint, and previous to that was an assistant to W. C. Durant in New York.

Scharps with Chrysler

C. E. T. Scharps has been appointed advertising manager of the Maxwell and Chrysler companies, succeeding J. W. Mattimore, who has resigned to enter the real estate business. Mr. Scharps is known to the trade through his work as automobile editor and advertising manager of the New York Telegram. He will take up his work at Detroit June 1.

Harris Changes to B. G.

Sid G. Harris, sales engineer, is now associated with the Commercial Car Division of the B. G. Corporation, 136 West Fifty-second Street, New York City, manufacturer of B. G. spark plugs. He will cover the fleet and dealer trade. Mr. Harris was formerly assistant manager of the New York branch of the Metropolitan Body Company.

Kinnear Given Territory

C. W. Hadden, general sales manager of the Velie Motors Corp., has appointed A. J. Kinnear district sales representative for the Moline district, which includes the portions of Iowa and Illinois adjacent to the company's factories at Moline, Ill. Mr. Kinnear has been associated with the Velie Motors several

Nelles in New Post

R. E. Nelles, for the past three years associated with the Tramrail Division of the Cleveland Crane and Engineering Co. as New York manager, has resigned to accept a similar position with the Reading Chain and Block Co., Reading, Pa. He will represent the Reading firm in the New York district.

Danish Engineer Joins Standard

Poul Hannover, mechanical engineer from Copenhagen, has joined the engineering staff of Fisher Fast Freight Division of the Standard Motor Truck Co., Detroit. Mr. Hannover is a graduate of the Copenhagen Polytechnical College. He was formerly connected with the Renault Co. of Paris.

Roberts Heads Dealers

Jo G. Roberts, president of the Philadelphia Nash Motor Car Co., was elected president of the Philadelphia Automobile Trade Association at the annual meeting of that body held recently. Mr. Roberts is widely known in the industry. He is a director of the N. A. D. A.

Hull Buys Partner's Interests

Harter B. Hull, formerly Dodge Brothers dealer in Waterloo, Iowa, and more recently of the firm of Hull-Cameron Co., Memphis, Tenn., has purchased Mr. Cameron's interests and will assume full charge of the Memphis distributorship on June 1.

Heaslet 27 Years in the Industry

James G. Heaslet, president of the Rollin Motors Co., last week celebrated the twenty-seventh anniversary of his active service in the automobile industry. During the world war he was in charge of all Liberty motor production for the

Graham Directs Mosler Sales

M. D. Graham has been appointed sales director of the Mosler Metal Products Corporation, manufacturer of spark plugs and radio equipment. Mr. Graham has been in the automobile industry for the last 16 years in various capacities.

Glassen Leaves Gray Motors

Rex F. Glassen has resigned as advertising manager of Gray Motor Co., to join the Cram Services organization in Detroit. Mr. Glassen is well known in the industry and has served the Gray company since its organization.

Elliott Has New Connection

R. R. Elliott, formerly vice-president and sales manager of the Burpee-Johnson Corp., Indianapolis, has been appointed sales manager for the Kokomo Checker Division of the Kokomo Automotive Manufacturing Co.

Crooks Joins Atterbury Forces

Raymond J. Crooks has been appointed general sales manager of the Atterbury Motor Car Co., Buffalo. Mr. Crooks has had a wide experience in wholesale, retail and used truck merchandising with both Packard and White.

Lansing Leaves Bijur

J. T. Lansing, formerly assistant sales manager of the Bijur Motor Appliance Co., Hoboken, N. J., has joined the staff of the Robert Bosch Magneto Co., New York, as manager of the sales promotion department.

Briggs with National Tool

C. H. Briggs has joined the sales staff of the National Automotive Tool Co., Richmond, Ind. Mr. Briggs until recently was associated with the Garvin Machine Company, New York.

New Maxwell-Chrysler Directors

William V. Griffin and Ernest R. Tracy have been elected directors of Maxwell-Chrysler Motors, Ltd., London.

Steel Wheel Meeting Will Decide Action

(Continued from page 915)

Only one tire maker would even make up a set of tires following his designs experimentally, so little was his idea regarded as worth while. The first set made waited until after Mr. Putnam personally had molds and cores built. Then one manufacturer made up several sets, one going to the inventor. The success of these first tires in actual operation was then personally demonstrated by Mr. Putnam on his own car, which he equipped with special wheels especially redesigned.

This demonstration of the tires was made not only to tire and car makers and engineers of both, but to the officials of the Patent Department. Special demonstrations were staged for patent office observance in and about Washington so that the difference in the riding qualities of the same car with and without balloon tires might be noted. These latter demonstrations are believed by friends to have been largely responsible for his final success in gaining recognition.

Mr. Putnam is well known in engineering circles in the industry, not only for his balloon tire investigations but for earlier achievements. He has been connected with the industry from its earliest days, serving as far back as the Warren-Detroit, the Racing Maxwells, Stevens-Duryea and other pioneers, according to his associates. He has been chief engineer of Detroit Pressed Steel Co. and later a consultant for Motor Wheel Corp.

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Continental in Deal for European Sales

Vice-President Angell States Foreign Makers Expanding Merchandising

DETROIT, May 20—W. R. Angell, vice-president of Continental Motors Corp., who has just returned from a three months' visit to the British Isles and the Continent, sees a splendid opportunity for American unit parts sales in expansion plans of leading European car builders. For his own company, he said, negotiations have been opened with makers of several of Europe's best known cars. Closing of these contracts with European builders will take place within the next thirty to sixty days if the negotiations are successful.

The business will be entirely in six-cylinder engines of conventional design but of slightly smaller type than the sixes in use in the United States. This is to meet the economy requirements of the European market. One of the manufacturers with whom Mr. Angell negotiated has already visited the Continental plant in pursuance of the matter, and two others are expected in the near future. These contracts, if carried through, will be with manufacturers in three countries—England, France and Italy. In each case the manufacturer is occupying an important place in the industry of his

Concentrate on Distribution

Expansion of the market abroad is making it necessary for these manufacturers to increase their output by importing engines from the United States. They are saved the necessity for additional plant investment and will be enabled to concentrate upon merchandising.

The opportunity to get this business is due entirely to the increased car selling opportunities in these countries, Mr. Angell said. Plant facilities of these manufacturers are now taxed and demand expansion by bringing in American engines. These companies will add entire new models to their lines, merchandising them in conjunction with their existing lines in most cases. The present production of these makers are confined to four-cylinder cars, which they will continue, but will offer the six-cylinder lines to meet the changing trend toward better powered vehicles.

Ample Funds Available

Automotive conditions in these three countries are excellent, Mr. Angell said. Cars are selling in ever increasing numbers and the home manufacturers are seeking to increase their output. Though ample funds are available for increased plant investment the manufacturers prefer to conserve their funds for merchandising requirements. Duties prohibitive on cars from the United States may be adjusted on units to figures

making their importation well worth while.

Development of their home markets is occupying most of the attention of these makers, Mr. Angell said, though they are also making important gains in their export trade. Conditions in Germany hold no early promise of business for American car builders, according to Mr. Angell's observations. Until there is a more even distribution of wealth, the country cannot be regarded as making strides toward stability. When conditions do become good, Mr. Angell said, the automotive requirements would in all probability be met by numerous assemblers, the good ones surviving.

Chicago Training Men for Automotive Work

CHICAGO, May 20—Through a campaign now being conducted by the Chicago Automobile Association, college graduates from more than 20 colleges and technical schools throughout the Middle West will be added to the staffs of the different automotive concerns in this district within the next three months. Upward of 250 students, seniors, have filed applications with the association.

The purpose of the campaign, says C. E. Gambill, president of the association, is to improve the quality of the employees and to secure those who possess the basic training for the different kind of work that the automotive industry requires. In a letter sent out to association members and others Mr. Gambill points out that many of the men now in college have been employed by automobile dealers in various capacities and that with such training they can easily step into the industry.

With the letters notifying the trade of the association's move have gone "requisitions." Employers who are desirous of having college men on their staff are asked to fill out the requisition, which permits describing in detail the kind of help they need, even to color of the hair, the age and the nationality.

HARDWOOD SALES IMPROVE

ATLANTA, GA., May 18—A marked improvement in hardwood sales to the automotive and body trades at the northern manufacturing centers of the industry during the first ten days of May is reported by the larger lumber mills in the Atlanta territory cutting the thicker dimensions of ash, maple and elm. Sales the first ten days of the month were the largest they have been of any ten-day period in the past seven or eight months.

The outlook for the summer months also is much improved, sales representatives of the hardwood companies in this district reporting to the mills that the automotive industries are beginning to produce on a much more active basis and will very likely continue heavy production well into the summer. The price situation is stable through the entire list of thicker ash, maple and elm dimensions primarily used by the body trades.

Trucks Prove Factor in Farm Efficiency

Agriculture Department States Marketing of Perishables Facilitated

WASHINGTON, May 20—Motor truck transportation of farm products has increased tremendously in the last few years, particularly in dairying and livestock regions, the Department of Agriculture announces here. With a few local exceptions the motor truck and railway service are complementary and not competitive, it is reported.

In a detailed study of the motor truck situation the Department of Agriculture says the motor truck has increased farm efficiency, developed old markets and established new ones, speeded the conversion of raw material into finished products, facilitated marketing and distribution and made it possible for farmers to take advantage of variations in demand at various markets. It has provided a service giving a complete movement from shipper to consignee without transfers or reloadings.

More Livestock Deliveries

A good example is the transportation of hogs into the Indianapolis livestock market. In 1923 nearly one-third of the receipts of hogs at Indianapolis were delivered by highway, compared with less than 5 per cent in 1913. No fewer than 934,960 hogs were delivered by truck in Indianapolis in 1923. Within a 50-mile radius of Indianapolis 95 per cent of the hogs marketed are delivered by motor truck. There are scattering shipments from territory 75 to 100 miles away.

from territory 75 to 100 miles away.

Many other farm products are efficiently handled by motor truck, notably milk, perishable fruit and vegetables. Shipment of such goods by motor truck has provided a continuous supply of perishable foods at many smaller towns where such supplies could not formerly be maintained because rail service was infrequent and irregular. It has lessened the operating costs of mercantile establishments by enabling them to replenish their stocks at more frequent intervals.

MICHIGAN BUS BILL VETOED

LANSING, May 19-The bill permitting railroad and interurban railway companies to operate trucks and buses paralleling their rights of way without a permit from the State Utilities Commission was vetoed by Governor Groesbeck. In disapproving the measure he said: "Neither this measure nor the common carrier act of 1923 adequately protects the public interest in the matter of regulation of common carriers upon our highways. The business of such carriers has become so large that a more comprehensive plan of controlling and safeguarding their operations by State authority must be devised."

Steel Mills Limited by Current Demands

Automotive Trade Only Bright Spot—Hand-to-Mouth Buying Continues

NEW YORK, May 20—Steel mill executives are chiefly occupied with whipping output into line with demand, curtailment of operations being the order of the day throughout the industry. With automotive absorption of steel the only bright spot in the steel business, producers are giving more thought than ever before to what the prospects for automotive orders over the next few months are.

While the impression predominates that automotive buying of steel is now at its peak, hope is expressed that this peak rate will and can continue for some time to come. Sales managers have given up hope of changing the hand-tomouth method of ordering, recognizing that not only has this come to be the permanent policy of automotive steel consumers but also that the capacity of the industry as a whole is now more than adequate to satisfy even peak demand in this fashion. There is no difficulty in finding mills that will make shipments so promptly as to obviate the necessity of anticipating the requirements of operating schedules by more than a fortnight.

Cold-Rolled Strip Weakens

What slight price changes have taken place in the last few days have been in favor of automotive steel buyers. Among these most notable is the weakening of cold-rolled strip, which may now be more nearly quoted at 3.75c., Pittsburgh, than the 4c. level that is still nominally carried in quotation tabulations. Certain it is that the average price at which new business is booked is on a 3.75c. basis. While the 4.40c., Pittsburgh, quotation continues to apply to full-finished automobile sheets, the sheet market as a whole, if at all altered, is more demoralized than it was before, some of the rollers cutting as much as \$6 below the leading interest's price in an effort to sweeten their backlog of

Steel Bars Hold Firm

The steel bar situation, however, shows firmness. Some producers are actually getting 2.10c. in spite of the fact that there are sellers at 2c., Pittsburgh, and automotive demand for cold-finished bars is one of the market's most potent props. Demand for alloy bars from automotive plants is also good. Wide hot strip is rather steady at 2.20c., Pittsburgh, with the narrower widths bringing 2.40c. Bolt and nut manufacturers report continued fair orders from the automotive industries, operating at approximately two-thirds of their capacity, which seems to be the general rate of operation, with the exception of steel bar mills.

PIG IRON—Automotive foundries are buying somewhat more freely, recognizing that on a \$19, valley furnace, basis for No. 2 foundry, the chances for further economies are slight, especially with scrap moving slowly in the other direction. Demand, by no means, however, is brisk.

COPPER—The trend appears slightly upward, obscured, however, by daily ups and downs. Automotive brasses continue in fair demand.

ALUMINUM—Routine shipments of Norwegian and Swiss aluminum continue. The domestic producer's operations, so far as can be learned, are normal. Automotive demand for No. 12 alloy and remelted metal is good.

TIN—This metal is holding its own in a dull market.

LEAD—The market has turned decidedly strong and supplies again show paucity, which is likely to be felt more and more from now on.

ZINC—Slackness prevails, but producers are not forcing sales,

Attack Prison-Made Car License Plates

NEW YORK, May 20—Prison-made automobile license plates are under fire in a campaign just launched by the National Association of Steel Stampings & Auto Accessory Manufacturers. The purpose of the campaign is to discourage the competition of penitentiaries in making automobile license plates, and particularly to prevent prison contractors from bidding on contracts in States other than those in which the respective prisons are located.

The association is taking the position that the action of prison authorities in putting convicts to work making license tags is in effect penalizing law-abiding working men and women by depriving them of work. Costs of prison-made plates, it is held, are higher than those made by private companies.

TOLEDO EMPLOYMENT HIGH

TOLEDO, May 20—Employment in Toledo automotive plants has stabilized itself within the last three weeks at the highest point since the summer of 1923. There are 29,800 men employed in fiftyone plants which report weekly to the Merchants' & Manufacturers' Association. Some of the local automotive plants have put on extra shifts, but it is anticipated that conditions will remain as they are for some weeks.

DODGE DIRECTORS MEET

DETROIT, May 20—Policies and contracts of Dodge Brothers, Inc., were reaffirmed at the first meeting of the new directorate, held at the factory. F. J. Haynes, president of the company, presided at the meeting, which was attended by all directors. Besides approving existing policies, contracts and managerial personnel, the directors voted a \$100,000 contribution to the Detroit Y. M. C. A. building fund, a drive for which is now in progress here.

Ask Bids on Planes for Air Mail Lines

Post Office Department Names Specifications for Craft for Ensuing Year

WASHINGTON, May 20—In order to secure the best possible type of plane suitable for the operation of the Post Office Department's air mail service, Postmaster General New announced this week that bids will be opened here on July 15 for furnishing whatever number of planes are needed for the ensuing fiscal year. Contracts will be awarded by the Department not later than November 1 next.

In the specifications prepared by the department it is pointed out that the planes, primarily, must be of rugged construction with pronounced safety factor and designed for cross-country work. Each plane must be equipped with a Liberty motor, must have a cruising speed of at least 95 m.p.h. with a landing speed of 50 m.p.h. Each plane must be capable of rising 15,000 ft. in the air, and have a cargo space of not less than 50 cu. ft. in order to take care of at least 1000 lb, of air mail. It must carry enough fuel to have a cruising range of 450 miles.

The Post Office Department has available \$2,600,000 for the maintenance of the air mail service for the next fiscal year, but it has not as yet been determined just how much of this sum will be spent in the purchase of new air mail planes. Bidders, however, will be compelled to submit proposals in lots of three, ten, twenty-five and fifty planes.

WASON BUSY ON BUSES

SPRINGFIELD, MASS., May 20—The plant of the Wason Manufacturing Co. is now going on full time, with a prospect of adding more workers shortly due to orders for buses and railroad cars being received. Two buses are being built for the New York Central Railroad to be added to others used to transport employees between Albany and Selkirk; a steam motor car is being built for use in Cuba. It is 60 ft. long and will have an oil burning steam engine at the front end. Six observation cars for Guatemala and Salvador are being finished also.

WOULD AID AVIATION

WASHINGTON, May 20—Senator Bingham of Connecticut announces here he will introduce legislation in the next session of Congress establishing a bureau of commercial aviation in the Department of Commerce. The bureau would assist in developing air navigation.

Just returned from a tour of army flying fields, Senator Bingham has advised President Coolidge that "there has been a noticeable improvement in army aviation in recent months."

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Shows Conventions

COMING EVENTS Races S. A. E. Meetings

SHOWS

May 20-23-Detroit, Second Annual Automotive Maintenual Automotive Maintenance Equipment Show,
General Motors Building,
conducted by the National
Automotive Chamber of
Commerce, with cooperation of the Motor and
Accessory Manufacturers
Association, National
Automobile Dealers Association, Society of
Automotive Engineers,
Automotive Engineers,
Automotive Equipment
Association, Automotive
Electric Association and
the Automotive Manufacturers Association, Sam
Miles, manager.
1-4—Detroit, Mich., Exhi-

Miles, manager.

1-4—Detroit, Mich., Exhibition of Automotive Body Builders' Association, Ballroom, Hotel Statler, F. D. Mitchell, manager.

31-Sept. 21—De Pere, Wis., Annual Automobile Show, under the auspices of the automobile division of the Green Bay Association of Commerce, W. F. Kerwin, manager. manager.

5-13—Sacramento, Cal., Seventy-first annual State Fair. Passenger cars, trucks, tractors and ac-cessories, C. W. Paine, manager.

cessories, C. W. Paine, manager.
7-12—Grand Rapids, Mich., Seventh annual show in connection with West Michigan Fair, under direction of Grand Rapids Automobile Dealers Association, Wm. T. Morrissey, manager.
7-12—Wheeling, W. Va., Eleventh annual State Fair, Exposition Building, in cooperation with Wheeling Automobile Dealers Association.
14-19—Cleveland, Public Auditorium, Annual Convention and Exposition, American Society for Steel Treating, W. H. Elsenman, secretary.
15-18—White River Junc-

Lisenman, secretary.

15-18—White River Junction, Vt., Nineteenth annual Twin State Fair, Auto Building, passenger cars, trucks and accessories, F. L. Davis, manager. ager.

21-26—London, England, Annual Cycle and Motor-cycle. Show under aus-pices of the British Cycle

and Motorcycle Manufacturers and Traders Union, Ltd.

26-Oct. 3—Annual State Fair and Exposition, Auto-mobile Building, passenger cars and accessories, W. H. Birdseye, manager,

Birdseye, manager.

28-Oct. 3—Chicago, Fourteenth annual Safety Congress and Exhibit, Rainbow Room, Hotel Winton, under direction of National Safety Council, A. M. Smith, business manager.

1-7—Salt Lake City, Third annual Automobile Show and Forty-seventh annual State Fair in Coliseum Building, Wm. D. Sutton, Supervisor of Automobile Show. Show.

28-Oct. 3 — Fresno, Cal., Fifteenth annual show in connection with Fresno District Fair, under di-rection of Fresno Motor Car Dealers Association, Ray C. Wakefield, man-

Ray C. Wakefield, manager.
5-9—Atlantic City, Young's Million Dollar Pier, Manufacturers' Exhibition in connection with American Electric Railway Association Convention.

tion Convention.
5-10 — Danbury, Conn.,
Eighth annual fair, Danbury Fair Auto Building,
under direction of Danbury Agricultural Society,
passenger cars, trucks,
tractors, accessories, etc.,
H. Lake, manager.

8-17—London, Olympia passenger car show.

10-17—Boston, Rubber and Tropical Exposition, Me-Tropical Exposition, Mechanics Hall, Chester I. Campbell, manager.

Oct. 10-25—Dallas, Annual Automobile Show, State Fair Automobile Building, under the auspices of the Dallas Automotive Trades Association, J. H. Connell, manager.

Oct. 24-Nov. 8—Shreveport, La.,
Twentieth annual State
Fair, passenger cars,
trucks and tractors, Geo.
T. Bishop, manager.

Oct. 29-Nov. 7—London, annual truck show.

Nov. 26 - Dec. 6 — Berlin, Ger-many, Annual Automobile Show in the Kaiserdamm.

CONVENTIONS

May 20-22—Washington, Annual Meeting of the United States Chamber of Commerce.

May 20-23—Milwaukee, National Association of Purchasing Agents.

chasing Agents.

20-23—Detroit, General Motors Building, National Automotive Service Convention conducted by the National Automotive Chamber of Commerce with the cooperation of Motor and Accessory Manufacturers Association, National Automobile Dealers Association, Society of Automotive Engineers, Automotive Equipment Association and Automotive Manufacturers Association.

May 22—New York, Hotel Com-modore, 27th Meeting of American Iron and Steel Inst.

May 27-28—Regional Motor Transport Conference un-der auspices of National Automobile Chamber of Commerce in Chicago. "Coordinated Transporta-tion" will be the theme of the conference. of the conference.

May 28-30—Schenectady, Hotel Van Curler, Spring Sec-tional Meeting, American Society for Steel Treating.

1-3 — Detroit, American Body Builders Association at Hotel Statler.

16-19—White Sulphur Springs, Greenbrier Hotel, Summer meeting of So-ciety of Automotive Engineers.

June 22-27-Summer Convention of the Automotive Equipment Association at the Broadmoor Hotel, Colorado Springs, Colo.

24-26—Seattle, National Foreign Trade Council Convention.

14-19 — Cleveland, Public Auditorium, Annual Con-vention and Exposition, American Society for Steel Treating.

Oct. 5-9—Atlantic City, Young's Million Dollar Pier, Amer-

ican Electric Railway Association.

Oct. 7-10-Montreal, Motor and Accessory Manufacturers Association Convention.

RACES

May 30-Indianapolis.

June 13-Altoona, Pa.

June 20—Baltimore-Washington Speedway, Laurel, Md. July 26—Paris, Montibery Track, French Grand Prix.

Sept. 7-Altoona, Pa.

Sept. 30-Fresno, Cal.

Oct. 10—Baltimore-Washington Speedway, Laurel, Md.

Oct. 24-Charlotte, N. C.

Nov. 26-Los Angeles.

S.A.E. MEETINGS

National

June 15 - 19 — Summer meeting of the Society of Automo-tive Engineers at White Sulphur Springs, W. Va.

Sept. 15-16—Production meeting and exhibition.

Sept. — Automotive Transporta-tion meeting.

Nov. — Service Engineering meeting.

Sectional

May 21—Detroit Section, Development of Automotive Clutches, E. E. Wemp, Metropolitan Section. Paper by H. M. Crane and J. H. Hunt.

22-Los Angeles Group. Paper by H. L. Horning.

28—San Francisco Group.
"Rectification versus Filtration of Oil in the Crankcase of an Automobile While in Operation."
Herbert L. Dickey.

29—Indiana Section, Aircraft for Defense, Major General M. M. Patrick, "Influence of the Motor Car on the Characteristics of the American People." Hon. A. J. Beveridge. Address by Charles M. Schwab. "The Engineer, What He Has Done for Humanity," C. F. Kettering.

FRENCH IMPORTS GAIN

PARIS, April 18 (by mail)-Automobile imports into France during the month of February totaled 2446 vehicles, of which 2285 came from the United States and 116 from Italy. Compared with February, 1924, the increase is

74.2 per cent. During the second month of the year French automobile exports totaled 4242 passenger vehicles and 345 trucks and tractors, this being a decrease of 10.4 per cent compared with February, 1924. The greatest change is with regard to Germany, which dropped from 1074 automobiles last year to 59 this year. Great Britain, on the other hand, increased her imports from 638 to 1238. Exports to the Belgian-Luxemburg Union dropped 50 per cent. Spain, Italy and Algeria, Morocco and Madagascar showed increases.

PROPOSE COAST TAXES

SAN FRANCISCO, May 16 - Submission to the people of California of a constitutional amendment providing for the stabilization of taxes on motor transportation has been authorized by the State Legislature. The measure provides for a 4.25 per cent tax on the gross receipts of motor passenger carriers, and 5 per cent tax on freight carriers.

BIG HOOSIER ROAD BILL

INDIANAPOLIS, May 19 - Indiana spent almost fifteen millions, \$14,919,-566, to be exact, on its State road system last year. With the exception of \$3,704,-939 of Federal aid and about one million of Indiana inheritance taxes, this entire amount of State road money was raised by owners and operators of motor vehicles of the State. Not one penny of general taxes went into the State road fund, and bonds for such purposes are unconstitutional in the State. Beside this the motorists of the State contributed \$1,000,-000 to county road aid as this portion of the State's gasoline two cent tax funds went to such purpose.